

# BULLETIN

Vol. XLIX

APRIL-MAY-JUNE 1960

No. 2



ETCH SEED ALMONDS APRICOTS AVOCADOS SWEET CHERRY

LEMONS OLIVES PEACHES

JUNES WALNUTS ARTICHOKE AS

BROCCOLI BRUSSELS SPROUTS

CAULIFLOWER CELERY HONEY DEW

SPINACH STRAWBERRIES TOMATOES

BARLEY LADINO CLOVER SEED

ALMONDS APRICOTS AVOCADOS

ED FIGS GRAPES LEMONS

DRIED PRUNES WALNUTS

ARTICHOKE BROCCOLI

CAULIFLOWER

CELERY STRAWBERRY

LADINO

WALNUTS

ARTICHOKE

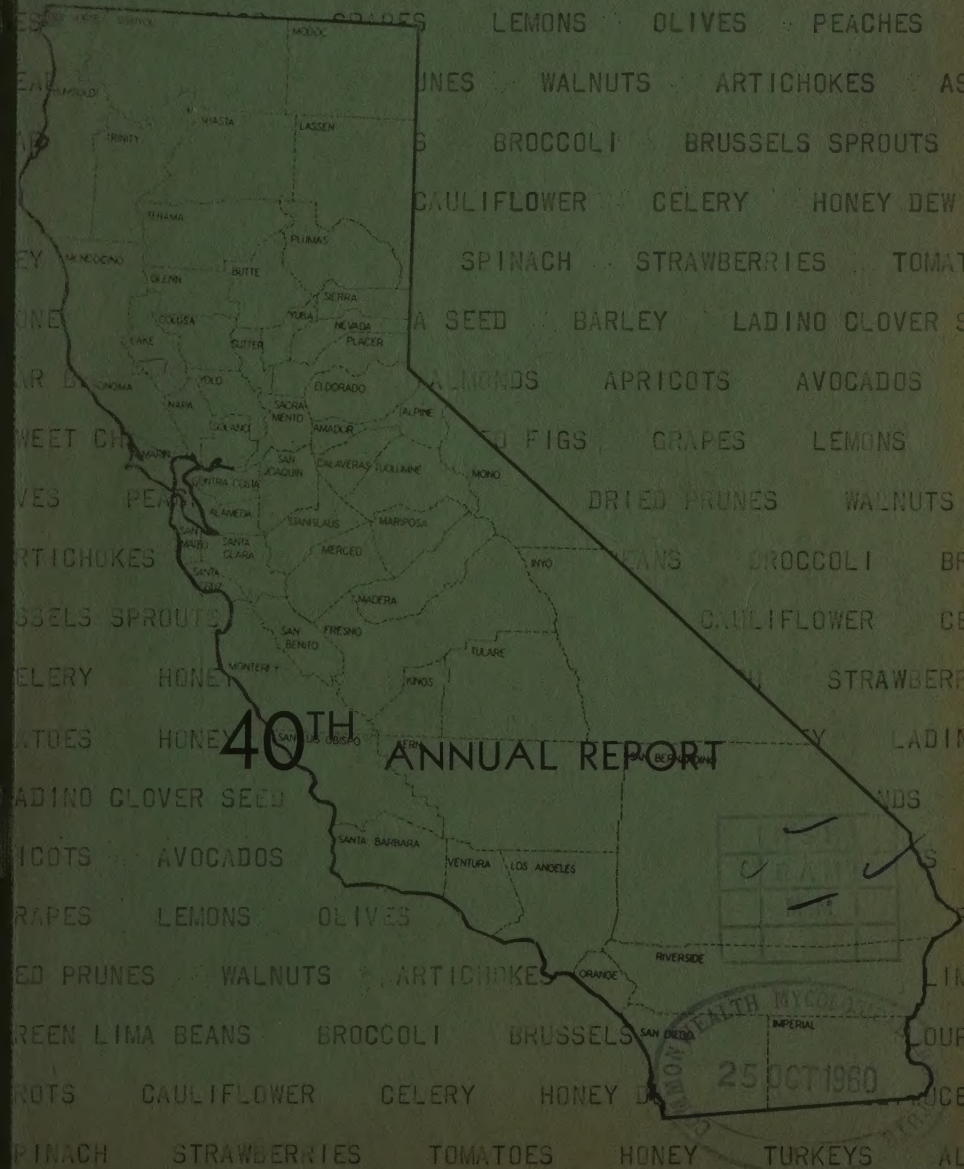
BRUSSELS

CAULIFLOWER

CELERY

HONEY DEW

SPINACH STRAWBERRIES TOMATOES HONEY TURKEYS



STATE OF CALIFORNIA  
EDMUND G. BROWN, Governor  
GLENN ANDERSON, Lieutenant Governor

# QUARTERLY BULLETIN

Volume XLIX      Number 2

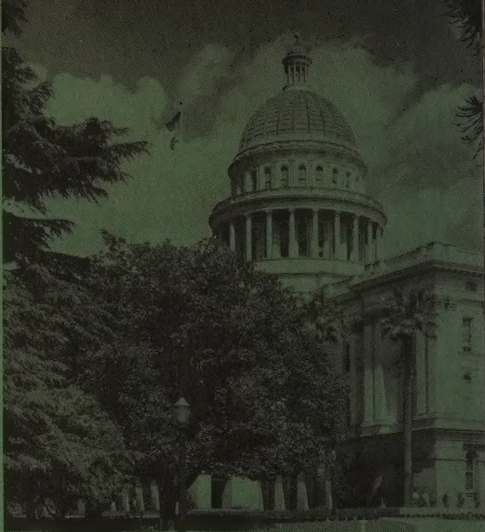
Official Journal of the Department of  
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WILLIAM E. WARNE, Director

MERLE HUSSONG, Editor

ROBERT H. ANDERSON, Desk Editor

CLIFFORD CLOWER, Photographer



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OUR COVER: California is the nation's leading producer of each crop listed on the cover.

The *Quarterly Bulletin*, published as a contribution to the welfare of California Agriculture, is mailed free to California citizens interested in the work of the Department of Agriculture. The *Bulletin* is exchanged, on request, for publications of the Federal Government, Experiment Stations, and other state or national agricultural offices or organizations.

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EDMUND G. BROWN, Governor of California

## ADMINISTRATION

*Departmental Personnel Office*CHARLES P. CUSICK, *Personnel Officer*FRANCIS G. STOFFELS, *Assistant Personnel Officer*

The Personnel Office administers the personnel management program of the Department of Agriculture. This program includes classification of positions, recruitment of employees, various personnel transactions affecting an employee's career, personnel investigations, training activities, maintenance of employee personnel records, and time reporting.

The office performs liaison work with all units of the State Personnel Board on personnel matters affecting the department. In addition to the personnel management function, the office provides other staff services, such as special studies, reports, and analyses for the Division of Administration and the Director.

One of the major activities of this office is the development and administration of certification examinations for the classifications of County Agricultural Commissioner, Deputy County Agricultural Commissioner, County Sealer of Weights and Measures, Deputy County Sealer, County Agricultural Inspector (8 categories), and Seasonal County Agricultural Inspector.

The office maintains an eligible list of persons who pass these examinations, and certifies their names to counties for consideration in filling vacancies.

**Training Activities**

During 1959, considerable training was given to employees at all levels in work improvement and work simplification. A total of 401 employees received such formal training. A three-day course in work improvement and work simplification was given to supervisory employees in Fresno, Los Angeles, Sacramento and San Francisco

by the departmental training co-ordinators.

The office assisted 12 bureaus in planning 15 formal training courses during the year.

**Work Improvement Proposals and Merit Award Board Suggestions**

The Department of Agriculture participated fully in Governor Edmund G. Brown's Work Improvement Project. During the year, 67 work improvement proposals and 46 merit award board suggestions were submitted by employees of this department. The following employees received recognition during the year for work improvement proposals or merit award board suggestions:

**Work Improvement Proposals:** Ritsuko Iwasa, William E. Simonds, Harry C. McCausland, Irwin A. Clark, Cecil S. Badman, C. M. Grady, Frank Quilici-John C. Lambert, George M. Buxton-Mrs. Iris E. Savage, Mark B. Rose, William A. Miller, Mrs. Esther Marturano, G. E. Betcher, Jr., Fred L. Gale.

**Merit Award Board Suggestions:** Mrs. Doris Schultze, Fred J. Roth, Glenn M. Jackson, Mrs. Luella M. Pechnik, Roy C. Brendon, Jack C. Huggins, Ray Campbell.

**Retirements**

Twenty-three employees, representing 554 years of state service, retired during the year. Thirteen of those employees had 25 or more years of service. The employee retiring with the most service was Director W. C. Jacobsen, who at the time of his retirement was the senior employee of the department in length of service. The employees who retired, and the bureaus and offices in which they were employed follow:



Name	Bureau or Office	Years of Service
Albert H. Arnett—Livestock Identification		19
Charles J. Carey—Administration		33
Guy A. Curless—Predatory Animal Control		21
Earle R. Eichner—Dairy Service		31
Roy J. Garman—Meat Inspection		14
Bernice G. George—Personnel Office		37
William C. Jacobsen—Administration		42
Glenn Koppenhaver—Plant Quarantine		31
Harry R. Latham—Plant Quarantine		30
Roy V. Loudon—Meat Inspection		5
C. Curtis McCumber—Livestock Identification		11
Albert P. Messenger—Plant Quarantine		39
Frederick W. Milich—Dairy Service		3
Eldor R. Muller—Shipping Point Inspection		27
A. D. Murray—Field Crops		32
Bertha Neiger—Livestock Disease Control		38
Lorene C. Patterson—Milk Control		25
Ferol C. Perkins—Meat Inspection		28
James P. Purinton, Sr.—Canning Tomato Inspection		9
Shirley L. Smith—Rodent and Weed Control and Seed Inspection		24
A. Eugene Strobbridge—Fruit and Vegetable Standardization		20
Thomas C. Sublett, Jr.—Market News		30
George J. Yardy—Livestock Disease Control		5

## County Examinations

The following table shows the results of examinations given by the department during 1959 to qualify persons for employment in County Agricultural Departments and County Departments of Weights and Measures:

Title of Examination	Number of candidates	Successful	Unsuccessful
County Agricultural Commissioner	112	72	40
Deputy Agricultural Commissioner			
County Sealer of Weights and Measures	158	57	101
Deputy Sealer of Weights and Measures			
County Agricultural Inspector	476	258	218
Seasonal County Agricultural Inspector	67	60	7
	813	447	366

# Departmental Fiscal Office

C. H. PERKINS, *Fiscal Officer*

MARIE GALLAGHER, *Assistant Fiscal Officer*

The fiscal office administers the financial and business affairs of the department. Included are such items as budget preparation and control, automotive management, property inventory controls, internal audit, and building management.

Fiscal controls involve operation in connection with eight different funds. Included is the Department of Agriculture Fund, from which operate the various self-supporting functions of the department. Although this fund is accounted through the regular fiscal control agencies as one fund, it requires the keeping of 21 subaccounts in our records in order that the funds for each individual self-supporting function may be earmarked for their particular use.

Another fund peculiar to the department is the "Department of Agriculture Building Fund." This fund was established by Chapter 11, Statutes of 1950, for the purpose of providing a method for investing surplus money in the Department of Agriculture Fund by using these moneys to construct a building for use of the department. The fiscal office is responsible for the operation of the building, and is concerned with the collection of the monthly rentals, and repayment of the principle amount borrowed, together with interest earned on moneys invested.

An accounting function peculiar to this department is the marketing trust accounting, which involves collection and disbursement of about \$8,000,000 annually on behalf of industry self-help marketing programs. These funds are exempt from usual state controls such as Controller's audit, Board of Control rules, and the usual budget procedures.

Automotive management involves the department's fleet of 485 passenger cars and 73 trucks and pickups. These vehicles represent those required at remote locations not serviced by the state pool. Total mileage driven by the department in the 1958-59 fiscal year was 11,298,617, including 2,012,862 miles of state pool car use.

The balance of the regular activities of the fiscal office covers the usual business functions necessary in the operation of a large department, and consists of the handling of leases, contracts, purchases of supplies and equipment, and control of the property and equipment owned by the various functions. The fiscal office also acts as the co-ordinating unit in the department insofar as contacts with the other fiscal control agencies are concerned.

Following is a financial statement detailing appropriations, revenue and expenditures for the various funds administered by the department.

## FINANCIAL STATEMENT

### Expenditures for the Fiscal Year July 1, 1958 to June 30, 1959

GENERAL FUND FUNCTIONS	Detail	Subtotals	Totals
ADMINISTRATION		\$545,505.02	\$545,505.02
Administration	\$504,373.27		
Office Service Unit	41,131.75		
DIVISION OF PLANT INDUSTRY			2,864,417.96
Administration		19,790.33	
Bureau of Entomology		805,025.00	
General entomology	362,708.71		
Destruction and control of beet leafhoppers and host plants	238,637.64		
Hall scale eradication	20,193.55		
Mexican fruit fly survey and treatment	80,387.02		
Khapra beetle suppression	103,098.08		
Bureau of Plant Quarantine		1,258,581.28	
Bureau of Plant Pathology		246,727.37	
Plant pathology	197,600.60		
Quick decline of citrus	49,126.77		



# Expenditures for the Fiscal Year July 1, 1958 to June 30, 1959—Continued

GENERAL FUND FUNCTIONS	Detail	Subtotals	Totals
Bureau of Rodent and Weed Control and Seed Inspection		476,640.19	
Rodent and weed control	127,806.78		
Seed inspection	124,907.66		
Predatory animal control	223,925.75		
Bureau of Chemistry		57,653.79	
Spray residue and injurious materials enforcement	57,653.79		
DIVISION OF ANIMAL INDUSTRY			3,468,384.91
Administration		19,928.42	
Bureau of Livestock Disease Control		1,956,367.92	
Field services	1,573,257.68		
Livestock and poultry pathology laboratories:			
Petaluma	72,539.25		
San Gabriel	71,991.80		
Fresno	81,927.00		
Sacramento	82,972.33		
Poultry pathology laboratories:			
Turlock	48,090.20		
Lancaster	25,589.66		
Bureau of Dairy Service		173,950.83	
Bureau of Meat Inspection		961,872.58	
Bureau of Poultry Inspection		356,265.16	
DIVISION OF MARKETING			1,363,589.51
Administration		17,616.52	
General marketing service		260,568.72	
Bureau of Market News		601,342.31	
Bureau of Agricultural Statistics		103,225.22	
Bureau of Fruit and Vegetable Standardization		290,284.26	
Fruit and vegetable standardization	234,981.89		
Poultry meat standardization	55,302.37		
Bureau of Weights and Measures		90,552.48	
Subtotal—Support			\$8,241,897.40
LESS GENERAL FUND REIMBURSEMENTS			710,033.48
Unscheduled reimbursements:		1,375.63	
Bureau of Rodent and Weed Control and Seed Inspection	89.12		
Bureau of Entomology	111.56		
Bureau of Livestock Disease Control	876.27		
Bureau of Poultry Inspection	211.33		
Bureau of Market News	8.40		
Bureau of Fruit and Vegetable Standardization	78.95		
Appropriation reimbursements		708,657.85	
Departmental administration	261,621.00		
Central supply	10,613.16		
Office service unit	33,786.95		
Bureau of Plant Quarantine	6,708.70		
Bureau of Rodent and Weed Control and Seed Inspection	28,003.89		
Bureau of Entomology	5,000.00		
Bureau of Livestock Disease Control	52,397.61		
Bureau of Meat Inspection	73,434.07		
Bureau of Markets	209,349.58		
Bureau of Market News	21,450.16		
Bureau of Fruit and Vegetable Standardization	6,292.73		
Total—Support			\$7,531,863.92
OTHER CURRENT EXPENSES			164,162.28
California Poultry Promotion Council		10,000.00	
Salaries of county agricultural commissioners		151,644.00	
Bovine brucellosis control		2,518.28	
Total—General fund functions			\$7,696,026.20

# Expenditures for the Fiscal Year July 1, 1958 to June 30, 1959—Continued

FAIR AND EXPOSITION FUND		Detail	Subtotals	Totals
Federal Co-operative Marketing Research.....				142,095.38
Bureau of Agricultural Statistics.....			68,725.46	
Bureau of Markets.....			25,973.40	
Bureau of Fruit and Vegetable Standardization.....			6,134.28	
Bureau of Plant Pathology.....			41,262.24	
LESS: AMOUNT PAYABLE BY FEDERAL GOVERNMENT.....			67,432.25	74,663.12
Retirement included in expenditures.....			7,230.87	
Federal.....		3,615.43		
State.....		3,615.44		
Total—Fair and Exposition Fund.....				\$67,432.26
DEPARTMENT OF AGRICULTURE FUND				
FUNCTIONS				
DIVISION OF PLANT INDUSTRY.....				\$1,152,702.23
Bureau of Nursery Service.....			\$151,143.03	
Bureau of Field Crops.....			555,012.27	
Bureau of Chemistry.....			413,199.94	
Chemistry †.....		\$386,925.04		
Agricultural pest control operators.....		26,274.90		
Bureau of Rodent and Weed Control and Seed Inspection.....			33,346.99	
Seed testing and certification service.....		33,346.99		
DIVISION OF ANIMAL INDUSTRY.....				920,420.61
Bureau of Dairy Service.....			183,425.53	
Bureau of Livestock Identification.....			736,995.08	
DIVISION OF MARKETING.....				3,949,871.68
Bureau of Markets.....			14,897.28	
Bureau of Market Enforcement.....			302,892.93	
Bureau of Milk Control.....			1,022,130.76	
Bureau of Fruit and Vegetable Standardization.....			844,146.96	
Canning tomato inspection.....		785,153.11		
Seed potato certification.....		58,993.85		
Bureau of Shipping Point Inspection.....			1,518,933.38	
Bureau of Weights and Measures.....			246,870.37	
Gasoline, distillate and oil inspection and anti-freeze and brake fluid registration.....		169,074.38		
Public weighmasters.....		77,795.99		
Subtotal—Support.....				\$6,022,994.52
LESS: DEPARTMENT OF AGRICULTURE FUND				
REIMBURSEMENTS				
Unscheduled reimbursements.....			1,313.21	13,657.49
Bureau of Livestock Identification.....		491.54		
Bureau of Dairy Service.....		20.27		
Bureau of Market Enforcement.....		245.85		
Bureau of Milk Control.....		56.75		
Canning Tomato Inspection.....		63.31		
Bureau of Shipping Point Inspection.....		384.71		
Gasoline, distillate and oil inspection, antifreeze and brake fluid registration.....		32.70		
Public weighmasters.....		18.08		
Appropriation reimbursements.....			12,344.28	
Bureau of Livestock Identification.....		7,048.39		
Bureau of Milk Control.....		2,035.89		
Seed Potato Certification.....		3,260.00		
Total Support—Department of Agriculture Fund.....				\$6,009,337.03
CAPITAL OUTLAY				
CAPITAL OUTLAY AND SAVINGS FUND				
Major construction, improvements and equipment.....				\$161,540.34
Bureau of Plant Quarantine.....			\$141,590.34	
Blythe Station.....		\$141,600.00		
Employee housing at Benton.....		—9.66		
Bureau of Fruit and Vegetable Standardization.....			19,950.00	
Carpenteria Station.....		19,950.00		

† Economic poisons, \$77,385.01; fertilizing materials, \$309,540.03.



# Expenditures for the Fiscal Year July 1, 1958 to June 30, 1959—Continued

CAPITAL OUTLAY	Detail	Subtotals	Totals
Minor construction, improvements, repairs and equipment _____			133.24
Departmental administration _____		133.24	
Sacramento _____	133.24		
Acquisition and development of real property _____			11,868.66
Bureau of Plant Quarantine _____		1,595.64	
Benton Station _____	35.00		
Twenty-nine Palms _____	1,560.64		
Bureau of Fruit and Vegetable Standardization _____		10,273.02	
Carpenteria Station _____	10,273.02		
Subtotal—Capital Outlay and Savings Fund _____			\$173,542.24
STATE CONSTRUCTION PROGRAM FUND			
Major construction, improvements and equipment _____			263,700.00
Bureau of Plant Quarantine _____		263,700.00	
Twenty-nine Palms Station _____	83,900.00		
Truckee Station _____	179,800.00		
Subtotal—State Construction Program Fund _____			\$263,700.00
MOTOR VEHICLE TRANSPORTATION TAX FUND			
Major construction, improvements and equipment _____			18,000.00
Bureau of Plant Quarantine _____		18,000.00	
Blythe Station _____	18,000.00		
Subtotal—Motor Vehicle Transportation Tax Fund _____			\$18,000.00
Total—Capital Outlay _____			\$455,242.24
OTHER FUNDS	Detail	Total	
DEPARTMENT OF AGRICULTURE TRUST ACCOUNT _____			\$196,442.10
Dairy trust _____	\$161,281.55		
California crop improvement _____	13,000.00		
Walnut crop survey _____	21,930.55		
Spray residue trust project _____	230.00		
STATE DAIRY PRODUCTS TRUST FUND _____			479,223.68
Fees _____	472,873.28		
Interest and Penalties _____	277.50		
Educational Supplies _____	5,738.42		
Miscellaneous income _____	334.48		
DEPARTMENT OF AGRICULTURE BUILDING FUND _____			165,252.51
Rental income _____	165,214.28		
Miscellaneous income _____	38.23		
Revenue for the Fiscal Year July 1, 1958 to June 30, 1959			
GENERAL FUND	Detail	Subtotal	Total
DEPARTMENTAL ADMINISTRATION _____		\$33.96	\$33.96
Miscellaneous income _____	\$33.96		
DIVISION OF PLANT INDUSTRY _____			3,534.98
Bureau of Entomology _____		185.42	
Apiary brand registration fees _____	47.50		
Miscellaneous income _____	137.92		
Bureau of Plant Quarantine _____		95.76	
Miscellaneous income _____	95.76		
Bureau of Rodent and Weed Control and Seed Inspection _____		3,253.80	
Nutria permits _____	3,240.00		
Miscellaneous income _____	13.80		
DIVISION OF ANIMAL INDUSTRY _____			128,345.88
Bureau of Livestock Disease Control _____		5,772.50	
Vesicular exanthema licenses _____	5,520.00		
Penalties _____	240.00		
Miscellaneous income _____	12.50		
Bureau of Dairy Service _____		64,460.26	
Container brand renewal fees _____	779.00		
Registration fees _____	280.00		

**Revenue for the Fiscal Year July 1, 1958 to June 30, 1959—Continued**

GENERAL FUND	Detail	Subtotal	Total
Factory licenses—miscellaneous dairy products.....	10,855.67		
Penalties .....	108.59		
Oleomargarine licenses			
Bakery and restaurant .....	2,900.00		
Manufacturers .....	1,300.00		
Wholesale .....	10,050.00		
Imitation milk licenses			
Manufacturers .....	200.00		
Retail .....	945.00		
Bakery and restaurant .....	16.00		
Wholesale .....	900.00		
Imitation cream licenses			
Manufacturers .....	200.00		
Retail .....	65.00		
Bakery and restaurant .....	90.00		
Imitation ice cream licenses			
Manufacturers .....	2,800.00		
Retail .....	19,050.00		
Bakery and restaurant .....	6.00		
Wholesale .....	6,600.00		
Samplers and Weighers Licenses	2,002.00		
Penalties .....	26.00		
Pasteurizers' licenses	2,543.00		
Penalties .....	26.00		
Testers' licenses	969.00		
Penalties .....	3.00		
Technicians' licenses	122.00		
Modified milk licenses	700.00		
Penalties .....	25.00		
Miscellaneous income	899.00		
Bureau of Meat Inspection		26,483.12	
Foreign cold storage meat inspection licenses.....	13,828.19		
Inspection fees.....	12,654.93		
Bureau of Poultry Inspection		31,630.00	
Poultry meat inspectors application fees.....	2,560.00		
Poultry plant licenses.....	24,240.00		
Miscellaneous income .....	195.00		
Inspectors license renewal fees.....	4,245.00		
Penalties .....	390.00		
<b>DIVISION OF MARKETING</b>			115.00
Bureau of Markets.....		115.00	
Sale of equipment.....	115.00		
<b>TOTAL, GENERAL FUND REVENUE</b>			<u>\$132,029.82</u>

DEPARTMENT OF AGRICULTURE FUND	Detail	Subtotal	Subtotals by bureaus	Total
<b>DIVISION OF PLANT INDUSTRY</b>				\$1,203,889.67
Bureau of Nursery Service		\$145,314.51	\$145,314.51	
Nursery licenses .....	\$115,664.00			
Restoration fees .....	1,405.00			
Acreage fees .....	2,917.75			
Psorosis registry fees .....	65.00			
Strawberry certification fees.....	15,538.90			
Grapevine registration fees .....	2,552.50			
Cherry registration fees .....	1,115.00			
Miscellaneous income .....	958.95			
Interest				
Building Fund .....	2,907.88			
Surplus money investment.....	2,189.53			
Bureau of Field Crops			628,952.88	
Field crops inspection.....		374,392.58		
Inspection fees .....	368,924.41			
Samples sold .....	1,517.00			
Miscellaneous income .....	252.25			
Interest				
Building Fund .....	2,109.86			
Surplus money investment .....	1,589.06			



# Revenue for the Fiscal Year July 1, 1958 to June 30, 1959—Continued

DEPARTMENT OF AGRICULTURE FUND	Detail	Subtotal	Subtotals by bureaus	Total
Warehouse inspection.....		566.70		
Warehouse inspection licenses .....	455.00			
Interest .....				
Building Fund .....	63.40			
Surplus money investment .....	48.30			
Grain warehouse inspection.....		2,377.96		
Registration fees .....	2,360.00			
Interest .....				
Building Fund .....	9.45			
Surplus money investment .....	8.51			
Commercial feeding stuffs service .....		251,612.18		
Hazardous remedy .....				
Registration fee .....	10,020.00			
Penalty .....	170.00			
Livestock remedy .....				
Registration fee .....	13,150.00			
Renewal .....	7,650.00			
Penalty .....	40.00			
Feeding stuffs .....				
Licenses .....	13,990.00			
Penalty .....	650.00			
Tonnage tax.....	201,906.20			
Tonnage tax penalty.....	1,016.90			
Miscellaneous income.....	43.38			
Interest .....				
Building Fund .....	1,691.44			
Surplus money investment .....	1,284.26			
Terminal weighing service.....		3.46		
Interest .....				
Building Fund .....	2.36			
Surplus money investment .....	1.10			
Bureau of Chemistry.....			388,634.07	
Economic poisons service.....		94,251.65		
Economic poisons .....				
Licenses .....	63,075.00			
License penalty.....	308.25			
Fees .....	32.00			
Limited use sales licenses.....	3,480.00			
Penalty .....	38.40			
Supplemental brand fees.....	24,834.00			
Sale of equipment.....	2.82			
Miscellaneous income.....	493.65			
Interest .....				
Building Fund .....	1,107.54			
Surplus money investment .....	879.99			
Fertilizing materials service.....		259,684.47		
Fertilizer licenses .....	22,850.00			
Penalty .....	195.00			
Fertilizer salesman licenses.....	5,122.00			
Penalty .....	220.00			
Agricultural mineral licenses .....	9,650.00			
Penalty .....	72.50			
Jobbers licenses.....	325.00			
Penalty .....	3.75			
Agricultural mineral tonnage tax.....	32,826.98			
Penalty .....	68.91			
Fertilizer tonnage tax .....	180,984.51			
Penalty .....	307.85			
Miscellaneous income.....	254.15			
Interest .....				
Building Fund .....	3,943.76			
Surplus money investment.....	2,860.06			
Pest control operators.....		34,697.95		
Operators licenses.....	27,900.00			
License penalty.....	465.00			
Pilot's certificates.....	5,935.00			
Miscellaneous income.....	—5.00			
Interest .....				
Building Fund .....	233.69			
Surplus money investment.....	169.26			

**Revenue for the Fiscal Year July 1, 1958 to June 30, 1959—Continued**

DEPARTMENT OF AGRICULTURE FUND	Detail	Subtotal	Subtotals by bureaus	Total
Bureau of Rodent and Weed Control and Seed Inspection.....		40,988.21	40,988.21	
Seed testing and certification fees.....	40,787.75			
Miscellaneous income.....	1.80			
Interest.....				
Building Fund.....	111.78			
Surplus money investment.....	86.88			
<b>DIVISION OF ANIMAL INDUSTRY.....</b>				893,342.40
Bureau of Dairy Service.....			190,345.10	
Miscellaneous income.....	1,540.00	1,540.00		
Interest.....				
Building Fund.....	1,893.05	1,893.05		
Surplus money investment.....	1,422.12	1,422.12		
Ice cream inspection.....		94,673.64		
Factory licenses.....	92,943.11			
Penalty.....	1,730.53			
Butter grading service.....		18,680.37		
Graders licenses.....	67.00			
Penalty.....	1.00			
Distributor fees.....	50.74			
Penalty.....	6.65			
Cutting and wrapping fees.....	18,553.58			
Penalty.....	1.40			
Market milk inspection.....		69,038.42		
Producer and distributor inspection fees.....	68,534.88			
Penalty.....	503.54			
Glassware testing service.....		3,097.50		
Glassware testing fees.....	3,097.50			
Bureau of Livestock Identification.....			702,997.30	
Miscellaneous income.....	465.00	465.00		
Proceeds from stray animals.....	10,717.62	10,717.62		
Canceled warrants.....	4.00	4.00		
Interest.....				
Building Fund.....	6,128.51	6,128.51		
Surplus money investment.....	4,433.02	4,433.02		
Cattle protection service.....		\$680,507.15		
Hide and brand inspection fees.....	\$600,405.15			
Brand recording fees.....	5,302.00			
Brand reinstatement fees.....	2,528.00			
Brand renewal fees 1 year.....	43,322.00			
Multiple year.....	6,086.00			
Duplicate certificate fees.....	14.00			
Brand transfer fees.....	1,018.00			
Slaughterers licenses.....	13,767.50			
Penalty.....	245.50			
Public cattle sales yard license.....	7,300.00			
Penalty.....	215.00			
Unrecorded brand penalties.....	304.00			
Horse and sheep protection.....		742.00		
Horse transportation licenses.....	108.00			
Slaughterers licenses.....	625.00			
Horse transfer.....	9.00			
<b>DIVISION OF MARKETING.....</b>				\$4,423,830.54
Bureau of Markets.....			\$9,076.88	
Agricultural Producers Marketing Act Commission allowance prorated fees.....	8,016.94	9,076.88		
Interest.....				
Building Fund.....	610.09			
Surplus money investment.....	449.85			
Bureau of Market Enforcement.....			257,952.84	
Produce dealers service.....		223,950.00		
Produce dealers license.....	149,760.00			
Penalty.....	1,910.00			
Brokers licenses.....	14,280.00			
Commission merchants licenses.....	14,680.00			
Agents licenses.....	10,967.50			
Cash buyers licenses.....	31,120.00			
Miscellaneous.....	1,232.50			



**Revenue for the Fiscal Year July 1, 1958 to June 30, 1959—Continued**

DEPARTMENT OF AGRICULTURE FUND	Detail	Subtotal	Subtotals by bureaus	Total
Processors of farm products.....		28,110.50		
Processors licenses.....	23,360.00			
Penalty .....	80.00			
Agents licenses.....	4,370.00			
Statement of intention to finance fees .....	218.00			
Miscellaneous income.....	82.50			
Interest				
Building Fund .....	3,392.18	3,392.18		
Surplus money investment .....	2,460.16	2,460.16		
Miscellaneous .....	40.00	40.00		
Bureau of Milk Control.....			1,191,216.06	
Canceled warrants .....	82.98	82.98		
Interest				
Building Fund .....	7,654.93	7,654.93		
Surplus money investment .....	5,689.95	5,689.95		
Fluid milk and cream stabilization .....		864,843.25		
Distributor and producer assessments .....	852,946.90			
Distributor licenses.....	5,778.00			
Penalty .....	294.00			
Civil penalty.....	5,800.35			
Miscellaneous .....	24.00			
Marketing of milk and other dairy products .....		157,065.27		
Ice cream manufacturer assessments .....	156,865.27			
Civil penalty.....	200.00			
Fluid milk and cream sales stimulation .....		155,879.68		
San Diego producer assessments.....	60,223.09			
Interest				
Building Fund .....	518.61			
Surplus money investment .....	413.18			
Sacramento producer assessments.....	24,849.75			
Interest				
Building Fund .....	146.35			
Surplus money investment .....	116.39			
Alameda-Contra Costa producer assessments .....	68,755.25			
Interest				
Building Fund .....	471.69			
Surplus money investment .....	377.17			
Canceled warrants .....	8.20			
Bureau of Fruit and Vegetable Standardization .....			875,975.08	
Canning tomato inspection.....		809,767.93		
Inspection fees .....	803,666.45			
Interest				
Building Fund .....	3,471.63			
Surplus money investment .....	2,626.77			
Canceled warrants .....	3.08			
Seed potato certification.....		66,207.15		
Certification fees.....	61,296.00			
Test plot fees .....	3,940.50			
Interest				
Building Fund .....	548.74			
Surplus money investment .....	421.91			
Bureau of Shipping Point Inspection.....		1,781,792.33	1,781,792.33	
Inspection fees .....	1,774,398.53			
Miscellaneous income.....	22.50			
Interest				
Building Fund .....	4,150.62			
Surplus money investment .....	3,216.04			
Canceled warrants .....	4.64			

# Revenue for the Fiscal Year July 1, 1958 to June 30, 1959—Continued

DEPARTMENT OF AGRICULTURE FUND	Detail	Subtotal	Subtotals by bureaus	Total
Bureau of Weights and Measures.....			307,817.35	
Gasoline, distillate and oil inspection		211,511.60		
Motor fuel pump licenses.....	195,675.90			
Antifreeze registration fees.....	3,500.00			
Brake fluid registration fees.....	5,900.00			
Penalty.....	50.00			
Miscellaneous.....	73.40			
Interest				
Building Fund.....	3,561.27			
Surplus money.....	2,739.03			
Canceled warrants.....	12.00			
Public weighmasters.....		96,305.75		
Weighmasters licenses.....	51,000.00			
Penalty.....	2,260.00			
Additional location.....	7,710.00			
Penalty.....	175.00			
Deputy weighmasters licenses.....	32,608.00			
Penalty.....	796.00			
Miscellaneous.....	168.17			
Interest				
Building Fund.....	710.60			
Surplus money investment.....	877.98			
TOTAL, DEPARTMENT OF AGRICULTURE FUND.....				\$6,521,062.61

## Department of Agriculture Building Fund for the Fiscal Year July 1, 1958 to June 30, 1959

Balance forwarded from 1957-58 fiscal year.....	\$78,746.08
Collections:	
Rental income.....	183,817.02
Miscellaneous income.....	38.23
Less:	
Return of principal to Department of Agriculture Fund.....	130,000.00
Expenditures.....	120,467.90
Balance as of June 30, 1959.....	\$12,133.43

# Appropriations from General Fund for the Fiscal Year July 1, 1958 to June 30, 1959

Current Fiscal Year Appropriations									
		Balance as of 6/30/58	Available	Less Actual Expenditures	Less Accounts Payable	Add Accounts Receivable	Balance per Budget Report	Items in Transit	Balance per Controller 6/30/59
Support—Department of Agriculture Ch. 1/58, 2ES, Item 34, 1958-59									
Reimbursements									
			\$8,639,296.00	\$7,969,690.42	\$273,056.98	\$850.00	\$397,398.60		
			—702,356.00	—677,411.82		32,621.66	+7,677.48		
			\$7,936,940.00	\$7,292,278.60	\$273,056.98	\$33,471.66	\$405,076.08	\$154,571.68	\$559,647.76
Salaries of County Agricultural Commis- sioners, Ch. 1/58, 2ES, Item 452, 1958-59 F. Y.									
			\$154,800.00	\$115,203.00	\$36,441.00		\$3,156.00	\$36,441.00	\$39,597.00
California Poultry Promotion Council, Ch. 35/58, 1ES, 1958-59 F. Y.									
			\$10,000.00	\$10,000.00					
Prior Fiscal Year Appropriations									
		Balance as of 6/30/58	Available	Add Prior Year Accounts Payable	Less Prior Year Accounts Receivable	Less Actual Prior Year Expenditures	Add Actual Prior year Reimbursements	Items in Transit	Balance per Controller 6/30/59
Support—Department of Agriculture, Ch. 600/57, Item 37, 1957-58 F. Y.									
		\$262,718.39	\$20,000.00	\$171,800.58	\$104,739.94	\$155,716.07	\$104,177.50		\$298,240.46 <sup>1</sup>
Augmented by EO #E58-195									
Federal Cooperative Marketing Research, Ch. 600/57, Item 38, 1957-58 F. Y.									
		14,949.63		3,213.15	2,076.63	3,755.99	2,348.04		14,678.20
Salaries of County Agricultural Commis- sioners, Ch. 600/57, Item 441, 1957- 58 F. Y.									
		642.94		38,361.00		38,352.67		—8.33	642.94 <sup>2</sup>
Bovine Brucellosis Control, Ch. 1023/57, 1957-58 F. Y.									
		206,304.13		15,984.25		18,502.53			203,785.85
Market News Service, Klamath Basin, Ch. 1473/57, 1957-58 F. Y.									
		6,000.00							6,000.00
Support—Department of Agriculture, Ch. 1/56, Item 41, 1956-57 F. Y.									
		99,079.62					3.35		99,131.55 <sup>3</sup>
Federal Cooperative Marketing Research, Ch. 1/56, Item 42, 1956-57 F. Y.									
		8,932.65					—48.58		8,932.65 <sup>3</sup>
Salaries of County Agricultural Commis- sioners, Ch. 1/56, Item 448, 1956-57 F. Y.									
		7.00					—275.00		7.00 <sup>3</sup>
Moving Expense, Ch. 1/56, Item 44, 1956-57 F. Y.									
		743.56							275.00 <sup>3</sup> 743.56 <sup>3</sup>



# Prior Fiscal Year Appropriations from General Fund for the Fiscal Year July 1, 1958 to June 30, 1959—Continued

	Balance as of 6/30/58	Available	Add Prior Year Accounts Payable	Less Prior Year Accounts Receivable	Less Actual Prior Year Expenditures	Add Actual Prior Year Reimbursements	Items in Transit	Balance per Controller 6/30/59
Vesicular Exanthema Program, Ch. 1/56, Item 42, 1956-57 F. Y.	18,596.64							18,596.64 <sup>3</sup>
Refunds to Reverted Appropriations <sup>4</sup>								
Support—Department of Agriculture								
Ch. 486/47, 1947-48 F. Y.								
Ch. 23/48, 1948-49 F. Y.								
Ch. 700/49, 1949-50 F. Y.								
Ch. 2/50, Item 44, 1950-51 F. Y.					—88.00			88.00
Ch. 1020/51, Item 39, 1951-52 F. Y.					—44.00			44.00
Ch. 971/53, Item 40, 1953-54 F. Y.					—8.00			8.00
Ch. 1/54, Item 39, 1954-55 F. Y.					—81.00			81.00
					—54.00			54.00
					—25.74			25.74
					—77.02			77.02

<sup>1</sup> Includes \$68,249.00 not included in Item 37 on Controller's records.

<sup>2</sup> Requested correction of Controller's balances for \$275.00 abatement that should have been applied to the 1958-59 F. Y.

<sup>3</sup> Reverted in 1958-59 F. Y.

<sup>4</sup> Unexpended balance reverted by Controller.

## Appropriations from Capital Outlay and Savings Fund for the Fiscal Year July 1, 1958 to June 30, 1959

	Balance as of 6/30/58	Available	Less Actual Expenditures	Less Accounts Payable	Balance per Budget Report	Items in Transit	Balance per Controller 6/30/59
Minor construction, improvements, repairs and equipment, Ch. 600/57, Item 286, 1957-58 F. Y., Fresno Laboratory	133.64				133.64		133.64
Acquisition of real property, Ch. 777/55, Item 277, 1955-56 F. Y.	—468.64		35.00		—503.64		
Bureau of Plant Quarantine—Benton Station	3,053.53	724.00	3,273.02		504.51	3,051.00	3,051.87
Bureau of Fruit and Vegetable Standardization—Carpenteria Station	7,000.00		7,000.00		00	2,750.00	2,750.00
Acquisition of real property, Ch. 600/57, Item 399; Ch. 777/55, Sec. 6.4, E.O. #E57-305, Carpenteria	145,789.00				145,789.00		145,789.00 <sup>1</sup>
Major construction, improvements, repairs and equipment, Ch. 777/55, Item 277.5, 1955-56 F. Y., Blythe Station	46,529.97		42,983.41		3,546.56		3,546.56
Major Construction, improvements and equipment, Ch. 777/55, Item 278a, 1955-56 F. Y.	266.26		133.24		133.02	120.00	253.02
Bureau of Plant Quarantine, Benton Station employee housing							
Minor construction, improvements, repairs and equipment, Ch. 1/56, Item 291, 1956-57 F. Y., departmental administration							

<sup>1</sup> Appropriation balance reverted by Controller.



# Appropriations from Department of Agriculture Fund For the Fiscal Year July 1, 1958 to June 30, 1959

## Statement of Revenue and Expenditures for the Fiscal Year July 1, 1958 to June 30, 1959

CURRENT FISCAL YEAR APPROPRIATIONS Support—Department of Agriculture Ch. 1/58, 2ES, Item 36, 1958-59 Augmented by E.O. No. D-59-23	Balance as of 6/30/58	Available	Less actual expenditures <sup>a</sup>	Less accounts payable	Add accounts receivable	Balance per budget report	Items in transit	Balance per Controller 6/30/59
		\$6,425,579.00						
		18,115.00						
		<u>\$6,443,694.00</u>	\$5,680,777.07	\$343,497.45	\$1,280.00	\$420,699.48		
		—2,000.00	<u>—12,862.22</u>		795.27	+11,657.49		
Reimbursements		<u>\$6,441,694.00</u>	<u>\$5,667,914.85</u>	<u>\$343,497.45</u>	<u>\$2,075.27</u>	<u>\$432,356.97</u>	<u>+\$332,118.30</u>	<u>\$764,475.27</u>
PRIOR FISCAL YEAR								
APPROPRIATIONS								
Support—Department of Agriculture Ch. 600/57, Item 39, 1957-58 F.Y.	Balance as of 6/30/58	Available	Add prior year accounts payable	Less prior year accounts receivable	Less actual prior year expenditures	Add actual prior year reim- bursements	Items in transit	Balance per Controller 6/30/59
Support—Department of Agriculture Ch. 1/56, Item 45, 1956-57 F.Y.	\$446,623.32							
Refunds to reverted appropriations, sup- port—Department of Agriculture Ch. 1/56, Item 45, 1956-57 F.Y.	324,974.71		\$226,953.24	\$1,502.71	\$224,556.32	\$1,100.58	—\$2,972.99	\$445,645.12
					—7,063.78 <sup>2</sup>			332,038.49 <sup>1</sup>
								983.87

<sup>1</sup> Unexpended appropriation balance reverted by Controller.

<sup>2</sup> Includes actual expenditures, \$705.83; 6/30/57 in transit + \$7,769.81.



	Balance as of 6/30/58	Collections		Other items <sup>1</sup>	Expenditures		Trans. by State Controller to Employees Retirement Fund	Balance as of 6/30/59
		1958-59	1959-60		7/1/58 6/30/59	Prior year expenditures		
<b>DEPARTMENT OF AGRICULTURE FUND</b>								
Bureau of Nursery Service.....	\$279,639.94	\$86,073.31	\$76,255.50	\$1,463.25	\$146,291.72	\$4,147.30	\$9,366.74	\$283,626.24
Bonded warehouse inspection.....	5,812.77	537.23		23.46				
				—27.93 <sup>2</sup>	101.92	32.42		6,211.19
Terminal weighing service.....	145.38	2.79		2.13		15.55		134.75
Grain warehouse inspection.....	281.13	2,375.16		3.02	2,364.90	73.35	201.19	19.87
Field crops inspection.....	156,181.23	373,401.45		829.08	319,838.67	14,324.49	17,663.50	178,585.10
Commercial feeding stuffs service.....	118,861.19	250,796.08		640.47	204,392.69	4,495.27	12,826.68	148,583.10
Seed testing and certification.....	4,050.24	40,937.59		40.18	30,540.84	3,479.07	2,445.96	8,562.14
Economic poisons service.....	89,610.65	72,471.55	18,540.00	400.09	75,055.47	1,476.69	5,162.81	99,327.32
Fertilizing materials service.....	372,912.88	250,398.37	7,150.00	1,866.47	300,220.14	5,907.22	20,651.17	305,549.79
Agricultural pest control operators.....	15,868.68	34,571.15		83.81	25,252.66	847.95	1,705.99	22,717.04
Bureau of Dairy Service.....	157,950.66	189,407.68		722.17	140,296.14	3,325.14	9,875.08	194,584.15
Bureau of Livestock Identification.....	609,665.56	700,352.12		10,614.59	710,827.57	20,131.86	48,994.32	540,678.52
Agricultural Produce Marketing Act.....	55,885.99	8,808.31		257.34	11,353.17	1,247.96	777.42	51,573.09
Bureau of Market Enforcement.....	330,097.41	256,522.24		1,836.09	288,771.18	7,329.83	17,935.64	274,419.09
Bureau of Milk Control.....	742,152.02	1,187,100.00		5,643.43				845,838.12
Milk control.....					965,856.85	30,295.18	54,078.75	
Dairy service.....					36,063.25	31.50	2,731.80	
Canning tomato inspection.....	276,667.22	808,176.12		1,393.61	761,399.58	8,015.43	10,372.88	306,449.06
Seed potato certification.....	33,768.27	65,941.24		3,465.56	55,161.17	932.82	3,349.37	43,731.71
Bureau of Shipping Point Inspection.....	225,938.14	1,779,734.11		1,925.11	1,371,697.02	110,163.34	64,555.19	461,181.81
Gasoline, distillate and oil inspection, antifreeze and brake fluid registra- tion.....	355,929.24	87,150.86						
Public weighmasters.....	68,708.49	68,592.67		316.89	73,381.67	5,996.75	4,246.54	92,490.09
	\$3,900,127.09	\$6,263,350.63	\$265,099.00	\$32,907.04	\$5,682,273.00	\$225,002.93	\$297,329.67	\$4,256,878.16
Transfer to Department of Agriculture Building Fund, Ch. 11/50.....	2,086,168.00			130,000.00 <sup>3</sup>			—	1,956,168.00
	\$1,813,959.09	\$6,263,350.63	\$265,099.00	\$162,907.04	\$5,682,273.00	\$225,002.93	\$297,329.67	\$2,300,710.16

<sup>1</sup> See detail schedules for: 1957-58 surplus money interest, \$11,589.28; unscheduled reimbursements, \$1,292.94; 1957-58 reimbursements, \$2,684.45.  
<sup>2</sup> Loan payment.  
<sup>3</sup> Returned principal from Building Fund.

# Revenue for the Fiscal Year July 1, 1958 to June 30, 1959

## DEPARTMENT OF AGRICULTURE TRUST ACCOUNT

### BUREAU OF DAIRY SERVICE TRUST PROJECTS

	Balance as of 6/30/58	Collections	Expenditures	Transfer to State Employees' Retirement System	Balance as of 6/30/59
South Joaquin-Sacramento Valley Market Milk District	\$6,169.85	\$6,880.00	\$2,903.81	\$134.47	\$10,011.57
South San Joaquin operators	11,906.01	23,332.75	24,936.05	1,713.68	8,589.03
Northern Counties	1.98	—	—	—	—
Fresno County	11.88	—	—	—	—
Humboldt and Del Norte County operators	7,292.27	15,969.84	16,359.99	1,088.24	5,813.88
Coast Region manufacturing concerns	6,580.96	3,631.77	5,962.60	435.14	3,814.99
Sacramento Valley operators	8,261.35	24,958.83	25,635.74	1,665.33	5,919.11
North San Joaquin operators	8,777.70	59,074.22	60,043.97	4,248.28	3,559.67
San Francisco Bay area milk dealers	2,359.65	7,544.50	7,037.82	469.63	2,396.70
Milk dealers and distributors in Southern California area	5,601.85	8,213.50	6,712.17	347.88	6,755.30
Northern and Central California milk products processors	4,537.54	2,900.00	3,719.65	255.89	3,462.00
Salinas-San Luis Obispo operators	4,107.12	8,790.00	8,516.77	555.12	3,825.23
Subtotal	65,608.16	161,281.55	161,828.57	10,913.66	54,147.48

### BUREAU OF RODENT AND WEED CONTROL AND SEED INSPECTION

#### California Crop Improvement Association

### BUREAU OF CHEMISTRY—SPRAY RESIDUE TRUST PROJECTS

General spray residue trust project	5,483.62	230.00	201.55	—	5,512.07
San Diego spray residue trust project	1,103.87	—	—	—	1,103.87
Los Angeles County region spray residue trust project	744.83	—	304.48	—	440.35
Subtotal	7,332.32	230.00	506.03	—	7,056.29
BUREAU OF AGRICULTURAL STATISTICS	—	—	—	—	—
Walnut crop survey	6,000.00	21,930.55	16,996.43	52.27	10,881.85
Grand total—Department of Agriculture Trust Account	\$80,329.76	\$196,442.10	\$191,703.93	\$11,894.53	\$73,173.40

### STATE DAIRY PRODUCTS TRUST FUND

	Balance as of 6/30/58	Collections	Unscheduled Reimbursements	Current year expenditures Advisory Board	Dept. of Agriculture	Prior year expenditures Advisory Board	Dept. of Agriculture	Transfer to Employees' Retirement System	Balance as of 6/30/59
CALIFORNIA DAIRY INDUSTRY ADVISORY BOARD	—	—	—	—	—	—	—	—	—
Section 746.3, Agricultural Code	\$263,537.78	\$479,223.68	\$3,053.35	\$446,792.96	\$8,860.89	\$19,597.65	\$3,700	\$4,135.30	\$262,728.01

**California Marketing Act and Agricultural Producers Marketing Act for the Fiscal Year July 1, 1958 to June 30, 1959**

	Balance as of June 30, 1958	Collections	Refunds	Distribution of pool sales proceeds	Agriculture Prorate Advisory Commission fees	Expenditures	Other items	Balance as of June 30, 1959
<b>CALIFORNIA MARKETING ACT</b>								
Fresh Bartlett Pears-----	\$15,578.41	\$39,240.53	\$439.05	-----	-----	\$27,082.42	{ 18631.45 2-4,650.00 46,800.00 21,556.22 }	\$27,928.92
Canning and Freezing Cling Peaches--	296,817.89	2,308,599.63	39,819.33	-----	-----	2,094,620.23	-----	484,684.18
Canning and Freezing Cling Peaches Surplus Diversion Stabilization Fund-----	4,938.30	1,237,919.63 15,000.00	1,237,919.63 2,258.62	-----	-----	-----	-----	-----
Cling Peach Crop Survey-----	-----	-----	-----	-----	-----	12,703.70	{ 2244.56 4-752.88 }	4,467.66
Dates-----	348.42	-----	-----	-----	-----	60.00	-----	288.42
Substandard Date Pool-----	8.78	-----	-----	-----	-----	-----	-----	8.78
Wine-----	602,148.89	2,200,565.50	2,458.74	-----	-----	2,352,580.26	{ 2-475.00 111,504.86 2248.21 2-250.00 2153.45 }	458,953.46
Grape Research Survey-----	19,025.64	25,957.97	2,042.02	-----	-----	22,115.18	-----	20,729.86
Grapefruit--Administration--	13,210.70	30,806.64	6,809.95	-----	-----	23,572.28	-----	13,606.60
Grapefruit--Advertising and Sales Promotion-----	5,216.12	977.71	2,631.42	-----	-----	2,719.10	181.36	924.67
Fresh Fall and Winter Pears-- Administration-----	3,701.90	2,161.72	-----	-----	-----	2,431.74	174.75	3,506.63
Sales Promotion-----	14,482.49	9,803.04	-----	-----	-----	12,615.84	4271.75	11,941.44
Canning Fall and Winter Pears-----	7,557.17	24,933.55	-----	-----	-----	22,312.39	1365.03	10,543.36
Dry Pack Lettuce-----	9,520.34	26,330.60	695.43	-----	-----	28,868.02	1146.05	6,433.44
Marketing Order for Figs Administration-----	19,914.44	45,016.38	20.15	-----	-----	44,124.05	1936.49	21,723.11
Advertising-----	9,610.11	96.00	-----	-----	-----	5,945.48	1116.31	3,876.94
Substandard Fig Pool-----	18,287.31	188,794.42	-----	145,007.65	-----	26,117.87	2-1,000.00	34,956.21
California Canned and Green Olives Recovery of Money Due Growers--	2,957.18	-----	-----	-----	-----	-----	169.88	3,027.06
Coachella Valley Green Corn-----	902.78	137.68	-----	-----	-----	-----	-----	1,040.46
Prunes-----	510.27	-----	-----	-----	-----	-----	-----	510.27
Early Apples-----	101,406.21	382,900.83	210.92	-----	-----	449,498.92	12,030.12	36,627.32
-----	3,654.70	22,362.36	-----	-----	-----	23,222.71	{ 2-25.00 1133.14 }	2,902.49



**California Marketing Act and Agricultural Producers Marketing Act for the Fiscal Year July 1, 1958 to June 30, 1959—Continued**

	Balance as of June 30, 1958	Collections	Refunds	Distribution of pool sales proceeds	Agriculture Prorate Advisory Commission fees	Expenditures	Other items	Balance as of June 30, 1959
<b>CALIFORNIA MARKETING ACT</b>								
—Continued								
Wine Processors.....	632.14	1,250.73				450.17	e202.46	1,635.16
Raisins.....	68,810.90	370,972.02				283,274.58	e325.00	160,339.81
California Fresh Plums.....	11,263.22	28,343.58	62.12			36,478.96	13,326.47	4,397.61
Grape Stabilization.....	1,481.64					24.71	7-242.43	1,006.26
California Fresh Peaches.....	6,878.84	94,011.88	28.93			97,748.06	8-208.24	3,643.55
Fresh Bartlett Pears.....	38,289.57	173,584.88	504.63			121,932.86	1,529.82	91,272.24
Lima Beans.....	42,982.10	40,750.17	102.23			44,083.81	11,835.28	40,425.34
Bedding Plants.....	316.12					60.00	e50.00	256.12
Lemon Products.....	22,255.07	12,131.24				11,126.71	e29.11	23,989.84
Lemon Cash Bond Stabilization Pool.....	1,840.48		1,840.48					
Lemon Stabilization Pool Proceeds.....	2,025.23		2,025.23					
Lemon Crop Survey.....	14,000.99	17,677.67						
Turkey Promotion.....	34,174.57	256,389.28	27.60			17,155.18	e-2.45	15,273.91
Extracted Honey.....	17,317.32	54,531.60				198,968.63	e752.86	92,495.86
Winter Head Lettuce.....	39.90					36,944.49	11,948.24	35,593.68
Long White Potatoes.....	177,494.59	367,659.23	1,509.00			39.90	e689.25	66,265.93
Delta White Potatoes.....	1,487.72	6,535.62				481,096.63	13,042.74	
Fresh Asparagus.....	54,839.53	42,348.46				6,689.70	e775.00	1,380.39
Processing Asparagus.....	64,722.85	64,748.22	31,076.10			31,863.69	146.75	35,151.71
Bush Berries for Processing.....	8,299.77	42,557.06	27,981.52			23,481.39	11,317.61	79,325.77
Hardy Pears—Promotion.....	11,137.74	14,918.39	83.33			39,178.97	11-2,000.00	9,871.59
California Strawberries.....	16,851.61	112,784.14				16,489.74	e277.06	9,894.47
Strawberry Crop Survey.....	1,438.98					116,115.72	e328.08	14,384.47
Cantaloupes.....	19,056.58	43,202.04				478.54	e200.00	
Cantaloupes Processors Performance Bond.....		1,000.00	1,000.00			53,171.41	e714.44	960.44
							e472.49	9,559.70

**California Marketing Act and Agricultural Producers Marketing Act for the Fiscal Year July 1, 1958 to June 30, 1959—Continued**

	Balance as of June 30, 1958	Collections	Refunds	Distribution of pool sales proceeds	Agriculture Promote Advisory Commission fees	Expenditures	Other items	Balance as of June 30, 1959
<b>CALIFORNIA MARKETING ACT</b>								
—Continued								
Poultry and Turkey Board as Amended	23,552.45	56,928.62	311.36			58,250.36	1595.51	22,514.86
Administration	4,889.97	104,245.82	259.47			105,569.80	\$150.00	3,673.28
Field Services							1216.76	
California Canned Green and Ripe							925.00	
Olives	189,061.86	429,505.41	15,641.82			426,789.47	15,767.48	181,928.46
Winter Head Lettuce		48,345.58	2,500.00			24,318.18		21,527.40
Summer Head Lettuce	459.40	4,500.00				4,839.20		120.20
California Beef Council	57,620.25	130,362.24	9.20			111,914.57		76,058.72
Olallie Berries	381.23	4,208.89	865.24			5,767.28	137.64	1,995.24
Proposed Marketing Order for Can-							104,000.00	
ning Tomatoes		3,500.00						3,500.00
Poultry Promotion Council— Prelim-								
inary		50.00				50.00		
Proceeds from Marketing Trust In-								
vestments		62,219.27				150.00	12—62,029.27	40.00
Totals, California Marketing Act	\$2,043,400.57	\$9,151,596.23	\$1,381,233.52	\$145,007.65		\$7,506,092.90	\$4,520.56	\$2,167,183.29

**California Marketing Act and Agricultural Producers Marketing Act for the Fiscal Year July 1, 1958 to June 30, 1959—Continued**

	Balance as of June 30, 1958	Collections	Refunds	Distribution of pool sales proceeds	Agriculture Prorate Advisory Commission fees	Expenditures	Other items	Balance June 30, 1959
<b>AGRICULTURAL PRODUCERS MARKETING ACT</b>								
Pear Crop Survey.....	8,071.53	124.25	1,875.74			6,339.35	148.28	28.97
Unclaimed Checks.....	48.28						12-48.28	147.28
Canning Bartlett Pear Zone No. 1.....	12,825.70	190,684.61			5,720.53	160,988.37	14147.28	47,390.36
Canning Bartlett Pear Trade Stimu- lation.....	96,580.75	186,905.21	2,464.12		1,844.41	158,581.10	123,088.95	113,007.38
Brussels Sprouts.....		12,613.22			378.41	8,070.75	127,500.00	4,164.06
Brussels Sprouts Trade Stimulation.....		9,759.73			97.60	3,020.00	12-3,088.95	6,642.13
Totals, Agricultural Producers Marketing Act.....							12-7,500.00	
Totals, Marketing Trust Account.....	\$117,526.26	\$400,087.02	\$4,339.86		\$8,040.95	\$336,999.57	\$3,147.28	\$171,380.18
	\$2,160,926.83	\$9,551,683.25	\$1,385,573.38	\$145,007.65	\$8,040.95	\$7,843,092.47	\$7,667.84	\$2,338,563.47

- 1 Investment Proceeds
- 2 Travel and Revolving Fund Advances
- 3 Return of Travel or Revolving Fund Advances
- 4 Federal Fund transferred to Lemon Survey
- 5 Transferred from Grape Stabilization
- 6 Transferred from Wine Marketing Order
- 7 Transferred to Wine Processors
- 8 Transferred to Wine Processors
- 9 Federal funds transferred from Cling Peach Crop Survey
- 10 Bank Loan
- 11 Return of Bank Loan
- 12 Investment proceeds prorated
- 13 Proceeds from unclaimed checks
- 14 Unclaimed checks
- 15 Revenue correction
- 16 Sales stimulation pro rata share of administrative expense



# DIVISION OF ANIMAL INDUSTRY

J. E. STUART, D.V.M., *Chief*

The Division of Animal Industry is charged with the responsibility of protecting California's livestock and poultry from losses sustained due to disease.

It also enforces measures to assure the public of a wholesome supply of foods of animal origin, and supervises an industry-financed protective service for livestock owners by recording brands and conducting inspections.

These services are performed by the Bureaus of Dairy Service, Livestock Disease Control, Livestock Identification, Meat Inspection, and Poultry Inspection.

The problems of contamination of livestock feeds and the adulteration of foods of animal origin with biologics, pesticides, radioactive substances and hormones, referred to in last year's report, became more intense.

Possibly due to an era of increasing prosperity, the recruitment and the retention of veterinarians in the three bureaus requiring these professional services became acute. This manpower problem has handicapped our administrators in carrying out their functions. The turnover of veterinarians proved to be a greater problem than recruitment.

The Bureau of Dairy Service was faced with a perplexing problem in connection with pesticide residues found in dairy products. Surveys were conducted throughout the State, necessitating the establishment of additional laboratory procedures for conducting essential tests. This bureau conducted outstanding services in training laboratory workers in methods of detecting antibiotics. As the year closed, the antibiotic adulteration problem in dairy products seemed to have been resolved.

The Bureau of Livestock Disease Control faced a new problem caused by the importation of large shipments of livestock from foreign countries. An outstanding protective service was rendered the livestock industry by retaining control over these shipments following release from quarantine by

the federal government. All of the animals involved were moved under supervision for immediate slaughter despite requests to divert them for feeding in intense livestock areas.

The federal-state co-operative brucellosis eradication program was carried out in an outstanding manner. Notwithstanding the suspension of some federal financial assistance, the number of counties certified was 28 at the close of the year. Del Norte County was the first to receive this honor on November 12, 1957.

Supervision of the cooking of garbage fed to swine was continued throughout the year, and in November the State passed a four-year period without an outbreak of vesicular exanthema. The United States declared the country to be free of the disease on October 22, 1959.

Humane slaughter laws dominated the attention of the meat packing industry during the year, and the Bureau of Meat Inspection developed regulations similar to federal requirements, designed to implement the California Humane Slaughter Law adopted by the 1959 Session of the Legislature. The inspection by this bureau of increasing amounts of meats imported from foreign countries was another important function.

The Bureau of Poultry Inspection made much progress in directing the improvement of poultry plant construction and equipment. Obtaining compliance with regulations on the part of plant employees continued to be an unresolved problem with this bureau.

Paul G. Robertson became Chief of the Bureau of Livestock Identification on March 1, 1959, filling the vacancy created by the resignation of Logan Morton the previous year. Carson L. Hubbard was appointed assistant chief of the bureau on June 22, 1959, to fill the vacancy resulting from Mr. Robertson's promotion. Following these appointments considerable progress was made in improvement of management practices and reorganization.

# Bureau of Dairy Service

O. A. GHIGGOILE, *Chief*

A. E. REYNOLDS, *Assistant Chief*

## MARKET MILK PROGRAM

The market milk program is centered around surveys and inspections of dairies, milk plants, laboratories and the collection of samples of milk and cream for analysis. These factors are also used as a basis to determine the efficiency and the degree of enforcement of approved milk inspection services which are supervised by the bureau. The total number of surveys and investigations made in 1959 was 626.

### Changes in Inspection Jurisdictions

During the year the City of Watsonville relinquished its certificate of approval for its milk inspection service, so the inspection and supervision of the milk supply of that city was taken over by the approved milk inspection service maintained by the County of Santa Cruz.

Other changes in dairy farm inspection areas made during the year were the assignment of milk and dairy farm inspection within the limits of the Cities of Dairy Valley and Artesia to the County of Los Angeles.

### Established Areas

In areas where local milk inspection services are not maintained, the director, when requested by a majority of the distributors and producers of market milk in the territory, may establish milk inspection services to be conducted by the department.

Such a service was established in the County of Lake, making a total of 24 counties wherein the department has established and conducts milk inspection.

With the establishment of a milk inspection area in Lake County, ungraded market milk is no longer produced and sold within the State.

### Contract Laboratories

Lacking sufficient personnel and equipment at the Sacramento Laboratory, the bureau contracted with five outside laboratories to conduct analysis on market milk samples. During the year these laboratories

conducted 17,227 bacteriological and chemical determinations on 7,096 samples of milk and cream. In addition 12,599 samples were collected and forwarded to the Sacramento Laboratory for analysis and 17,220 labels for market milk were examined for accuracy.

Field representatives made field tests to check the quality and composition of market milk and cream. The field tests included 352 lactometer readings, 4,712 flavor and odor tests, 3,868 sediment tests and 3,161 temperature tests, and involved 5,693 inspection visits to market milk dairies.

### Laboratory Analyses

When bacteria counts are involved in the purchase and sale of milk, persons making such analyses must be licensed and supervised by the bureau. They must hold a valid technician's license. During the year 18 investigations were made on the accuracy of licensees. At the close of the year, 99 technicians were licensed.

Laboratories maintained in connection with approved milk inspection services must have qualified employees to do the bacteriological and chemical analyses of milk and cream. Such employees must take an examination to test their proficiency in these techniques. If successful, they are given a certificate of proficiency in market milk analysis. In 1959, 31 certificates were issued. Ninety-three checks or examinations were made on holders of such certificates and 2,111 investigations were made on laboratory equipment.

### RECEIVING POINT INSPECTION

Milk and cream produced for manufacturing purposes is graded upon receipt at the receiving platforms by the use of the direct microscopic count, sediment test, modified volumetric acidity test and flavor and odor test. The combined odor-bacteria technique of identifying milk of poor quality is being continued because it is simple, rapid and reasonably accurate.

During the year, 1,031,816 lots of milk and cream were examined for quality by

10,797 microscopic examinations, 493,999 by temperature tests, 624,893 by flavor and odor tests, 549,847 by sediment tests, and 115 by acidity tests.

Seven thousand sixty-two lactometer readings were also made for the purpose of detecting milk adulterated by the addition of water. The manufacturing milk and cream quality control program includes the inspection of dairy farms producing such products. This program is voluntary and is industry financed through trust fund agreements between the processors and the department. Eighteen dairy inspectors are employed through this program.

The heavy reduction in the volume of milk produced for manufacturing purposes made it necessary to disband the voluntary milk and cream grading program in the Salinas-San Luis Obispo area effective December 31, 1959.

Visits to milk products plants for quality determination on the products amounted to 19,927 and the inspection of 22,598 dairy farms.

As the result of this grading program, the sale of milk and cream was suspended from 28 dairies until they were restored to the proper sanitary condition. A total of 3,480 lots of milk, representing 878,059 pounds, and 29 lots of cream representing 1650 pounds, were condemned as unfit for human consumption.

## FROZEN MILK PRODUCTS PROGRAM

Additional responsibilities were given the bureau in the frozen milk products program by the adoption of definitions and standards for diabetic and dietetic ice cream and diabetic and dietetic ice milk. Such products are to be advertised, labeled and sold in accordance with regulations promulgated by the director. Accordingly, a hearing was held in Sacramento December 15.

### Inspection and Analysis

There are 2,830 plants manufacturing frozen milk products which are required to be inspected at irregular, frequent intervals. Samples of the products are collected at point of manufacture, distribution and retail for laboratory analysis. The analyses are made to check bacteria, milk fat, stabilizers and food solids. Samples collected totaled 584. Five thousand nine hundred seven lots were examined for quality. Ice cream and ice milk are required to contain a defi-

nite amount of food solids making necessary accurate weight determinations. During the year weight determinations were made on 3,082 units of ice cream and ice milk. Seventeen thousand four hundred seventy-two investigations were conducted in reviewing advertising and labeling requirements.

## BUTTER CONTROL PROGRAM

Grading for quality laboratory analysis are the principal features of the butter control program. Butter grades apply to the product at the consumers level making it necessary for sampling to be conducted at retail establishments. During the year 6,033 samples of butter were scored and examined for quality. Three hundred forty-seven samples were forwarded to the Sacramento laboratory for chemical analysis. Six hundred eighty-eight lots of butter were checked for correctness of weight and 6,825 butter brands and labels were examined. All persons or firms cutting and wrapping butter or distributing butter received from out of state in packaged form must employ licensed butter graders. During the year 71 graders were licensed. Their main responsibility is to make certain that butter is wrapped and packaged according to grade. There were 393 investigations or examinations made on the accuracy of their work. Failure to meet quality determinations resulted in the impounding of 36,006 pounds of butter as compared to 29,373 in 1958.

### New Legislation

An amendment to the Agricultural Code, effective in the fall of 1959, eliminated requirements for Third and Fourth Quality butter. Only two grades, namely, First Quality and Second Quality, are now permitted to be sold in retail package form. Any butter qualifying below Second Quality cannot be sold or served to customers, and when sold must be in bulk packages containing not less than 30 pounds and must be labeled "for cooking and baking purposes only."

## CHEESE CONTROL PROGRAM

During the year 668 samples of cheese and products thereof were collected for laboratory analysis and 9,165 labels and brands were examined for accuracy. As the result of quality determinations on 762 lots of cheese, 3,275 pounds were impounded for failure to meet required standards.

## Grated and Shredded Cheese Standards

At the request of the California Cheese Association, an official hearing was held for the purpose of considering regulations on the composition and labeling of certain varieties of cheese to be used for grating or shredding purposes. Regulations were adopted and will affect only cheese of the grating or shredding varieties. The regulations became effective February 11, 1960.

## MISCELLANEOUS PRODUCTS INSPECTION

Products classified as miscellaneous includes condensed milk, both whole and skim, concentrated milk, cream dressing, cultured buttermilk, buttermilk, evaporated milk, eggnog, acidophilus milk, modified milk, sterilized milk and cream, whip cream topping, whole milk powder, nonfat dry milk and flavored milk drinks.

Samples of products falling within this group, and of certain ingredients used in their manufacture, are collected and forwarded to the laboratory for analysis. During the year 2,796 samples were collected for analysis and 2,672 lots of such products examined for quality and proper labeling. A total of seven lots were rejected for failure to meet legal requirements and 2,630 lots of various ingredients used in these products were examined for quality. The number of samples of such ingredients collected for analysis was 118.

## LICENSING OF IMITATION PRODUCTS

This group includes any product intended to be used for, or as a milk product which contains oils or fats other than milk fat. During the year 1,451 investigations were made on such products.

During the fiscal year ending June 30, 1959, licenses were issued as follows: 13 to manufacturers of oleomargarine, 201 to wholesale dealers, 1,462 to bakers and restaurants, 2 to manufacturers of imitation milk, 17 to wholesale dealers, 183 to retailers, 7 to bakers and restaurants, 2 to manufacturers of imitation cream, 13 to retailers, 45 to bakers and restaurants, 28 to manufacturers of imitation ice cream and imitation ice milk, 136 to wholesale dealers, 3,808 to retailers and 3 to bakers and restaurants.

## COMMERCIAL TESTING PROGRAM

All persons testing, sampling, weighing or measuring milk or cream, when the results of tests or weights are to be used for determining payment of the products, must be examined and licensed by the bureau. All active licensees are checked at irregular, frequent intervals.

There were 375 checks and examinations conducted on milk and cream testers and 1,486 on samplers and weighers. A total of 4,016 samples of milk and cream were collected for testing and 44,466 pieces of testing apparatus were examined during the course of checking licensees.

One hundred fourteen pieces of testing apparatus were condemned as inaccurate.

At the close of 1959, there were 800 licensed milk and cream testers and 2,038 licensed samplers and weighers. Much of the time of bureau employees assigned to the fluid milk and cream testing program is devoted to checking on the accuracy of agitation of milk in bulk farm tanks.

During 1959, 363 farm milk tanks were installed on dairy farms, making a total of 4,265 at the end of the year, as compared with 3,902 at the close of 1958.

One thousand one hundred nine farm tanks were checked and tested during the year.

Records pertaining to milk fat tests and weights of products purchased from producers were checked during 528 visits to plants to determine the correctness of such tests and weights, and 339 investigations were made on sampling of milk and cream.

## DAIRY CONTAINER SERVICE

A unique feature of the dairy containers service is the fact that dairy container brands may be registered under the provisions of the Agricultural Code, but such registration is not mandatory.

Fifty-three new dairy container brands were registered in 1959, bringing the total number of active certificates at the close of the year to 881. The enforcement of the provisions of the Agricultural Code relating to the use and handling of registered dairy containers is largely on a self-supporting voluntary basis and is supported by trust fund agreements between various operators and the department. There are four such agreements covering the Southern Califor-



ia area, the San Francisco Bay area, and the Sacramento and San Joaquin Valleys. The three investigators employed on this program made 13,138 visits to various establishments to check on the containers and were instrumental in returning 28,777 to their rightful owners. They also checked the brands and conditions of 1,117,946 containers. One hundred thirty-two were condemned.

#### **Bottle Exchanges**

The movement of dairy containers from one area to another is facilitated through the services of bottle exchanges organized and established throughout the State and which are under the supervision of the department.

During the year 150 investigations were made on the operations of these exchanges.

Bureau activities connected with manufacturing milk and cream control program resulted in the return of 2,402 milk cans to their proper owners. Bureau personnel also examined 196,743 milk cans for defects such as open seams and rust spots and found 427 cans to be defective.

Two thousand six hundred twenty-seven mechanical devices used for the washing, sterilizing and drying of dairy containers are inspected. Dairy containers must be protected against contamination during transit which accounts for 20,071 inspections of transportation facilities.

#### **DAIRY SERVICE LABORATORY**

The Dairy Laboratory is involved mainly with chemical and bacteriological and other laboratory examinations on milk and milk products to determine conformity with legal standards, and to develop ways and means to detect adulterated or unwholesome milk products.

During the year 18,302 samples of milk and milk products were examined upon which 28,285 bacteriological and chemical determinations were made.

Glassware used for various methods of testing milk and cream must be examined at the dairy laboratory and certified as being correct before it can be used.

During the year, 15,167 pieces were examined of which 15,011 were approved.

In addition to the examination of official samples, several hundred samples of milk and milk products were checked for flavor, odor, texture, color and quality.

Other work of the laboratory staff included the analysis of milk and milk products samples for spray residues and antibiotics, checking milk cartons for presence of phenolic resins, diabetic ice cream for the presence of sucrose, low-sodium milk for quantity of sodium, and butter and ice cream samples for foreign oils.

The bureau is still co-operating with other state agencies in the milk split sampling program and has expanded the split sampling program within the State to include all the milk inspection agencies maintaining laboratories for milk and cream analysis.

#### **GENERAL**

Many activities of the bureau are general in nature and cannot be included with any specific program such as visits to retail establishments to check the labeling and quality of products. In 1959, 4,867 visits to retail establishments were made and 18,020 inspections and visits were made to milk products plants. At these plants 2,068 temperature recording devices were checked for accuracy and 15,352 temperature charts examined to see that the products were properly pasteurized and the required data appeared on the charts. During the year 1,744 pasteurizer operators were checked for the accuracy of their work and at the end of the year there were 2,481 licensed operators of pasteurizing equipment. Two hundred seventy-one high temperature short time pasteurizing units were checked.

#### **New Constructions**

There were 532 new milk products plants and dairy farm buildings constructed and 1,152 buildings improved. Improvements on the equipment amounted to 5,854 and on methods 7,677. Three hundred seven tests were made on washing and sterilizing solutions, 36 sterility tests on equipment and 1,249 investigations were made of water supplies.

#### **Collaborating Activities**

Members of the bureau continued to assist the Dairy Industry Division and the School of Veterinary Medicine at the University of California, Davis, with instructions dealing with dairy science. They also assisted with the judging of milk and milk products entries at the California State Fair and various district and county fairs.

As in past years, the bureau again took over the supervision and demonstration and operation of the model dairy barn at the State Fairgrounds.

Training courses were held in various sections of the State for state, county and city milk inspectors and sanitarians.

The bureau is assisting and co-operating with the U.S. Public Health Service in the collection of milk samples and forwarding them to the laboratory in Cincinnati where tests are made for the presence of radioactivity in milk.

## Bureau of Livestock Disease Control

H. G. WIXOM, D.V.M., *Chief*

E. F. CHASTAIN, D.V.M., *Assistant Chief*

### GENERAL LIVESTOCK DISEASE CONTROL PROGRAMS

Licensed veterinarians and persons operating animal disease diagnostic laboratories are required under the provisions of Section 181 of the Agricultural Code to report immediately the incidence of certain animal diseases to this bureau. This report contains a summary of these diseases reported in 1959. Some of these diseases require specific control measures which are supervised by regulatory personnel.

#### Anthrax

Seven outbreaks of anthrax involving 2,058 cattle were reported in four counties. Four cases of which occurred in Sacramento County. Twenty-one cattle died. All outbreaks were in known endemic areas. In all cases, the owners failed to vaccinate or check the vaccination status, prior to turning cattle on infected pastures.

#### Bluetongue in Sheep

Seventeen flock outbreaks of bluetongue in unvaccinated animals were reported in 10 counties. The outbreaks were confined to the Sacramento, San Joaquin and Imperial Valleys. There were 17,281 sheep in the flocks involved. Three hundred ninety-seven sheep were reported affected and 30 of them died. The incidence was nearly the same as in 1958, however the morbidity and mortality were much lighter in 1959.

#### Equine Encephalomyelitis

Only seven cases involving seven animals were reported during the year. There were three cases in Imperial County, three in San Diego County and one in Riverside County. Vaccinations of horses and mules against the disease totaled 1,413 as compared with 1,568 in 1958.

### Infectious Bovine Rhinotracheitis

The incidence of this disease, identified as IBR, dropped materially from that reported in 1958, which was the heaviest since this virus infection of the upper respiratory system was identified in 1954. Outbreaks were reported on 16 premises in nine counties; 24,239 cattle were involved, 324 animals were affected and 24 deaths occurred. The mortality and morbidity rates were relatively low. Vaccination is proving to be an effective control measure. Feedlot cattle were mainly involved.

### John's Disease (Paratuberculosis)

There was an increase during 1959 of cattle herds found to be infected with John's disease in Sacramento and Sonoma Counties which accounted for 9 of the 14 herds reported. Infected herds were also reported in Butte, Humboldt, Marin, San Mateo, and Stanislaus Counties. Three cases were diagnosed from laboratory specimens submitted and 42 reactors were found on subsequent tests using Johnin. Cross sensitization studies were conducted on several of these herds using tuberculin. Results were inconsistent.

### Leptospirosis

#### Outbreaks of Leptospirosis Reported in 1959

Species	North	Central	South	Totals
Cattle	63	152	35	250
Horses	2	19	1	22
Sheep		1	1	2
Swine	5	10	2	17
1959 Total	70	182	39	291
1958 Total	207	461	104	772

### Scabies

No cases of psoroptic or sarcoptic scabies were reported in California during the year. This is commendable, due to the fact that heavy imports of permit cattle and sheep into California from states where scabies is

known to exist continued throughout the year. The States of Colorado, Kansas, Illinois, Nebraska, Texas and Wyoming were listed as cattle scabies states. During 1959, there were 27 states under quarantine for sheep scabies. In states where a scabies quarantine exists, a permit for shipment, treatment and certification as to scabies is required prior to entry into California. The shipments are promptly inspected soon after arrival by bureau inspectors as a preventive measure.

#### Turkey Breeding Flocks

Provision was made during the year to issue certificates upon request to persons or firms whose turkey hatching egg supply records were negative on first test for *Salmonella typhimurium*. Certification that all turkey hatching eggs or poults to be offered for sale during the 1959-1960 breeding season were from negative flocks was requested by some of the growers, hatcheries and sales agencies in order that these products might be accepted by hatcheries and breeding farms participating in recently established voluntary *Salmonella typhimurium* control programs in other states.

Apparently because of this anticipated need for certification, the testing of turkeys for this disease in the state diagnostic laboratories in 1959 was approximately twice the volume of the previous year. Although each certification was made in a few instances toward the end of the year, no plans

were developed for the establishment of an official program in the State.

#### Importation of Australian Sheep

During 1959, two shiploads of feeder lambs were shipped from Australia to the port at San Diego where they were held in quarantine by the United States Department of Agriculture for 30 days. There were 25,652 lambs loaded in Australia in the first shipment which arrived July 25, 1959. Two thousand twenty-three died en route. Twenty-five thousand, two hundred seventy-seven were loaded in the second shipment which arrived November 7, 1959. Seven hundred seventy-one died en route. There were quite a number of deaths in the quarantine pens, due mostly to pneumonia, enterotoxemia and posthitis.

The owners of the sheep requested permits, after the quarantine period, to move these sheep to the Imperial Valley for feeding purposes. These permits were refused by the Bureau of Livestock Disease Control due to danger of spread of foreign disease to California sheep from possible disease carrier animals in the imported sheep. They were only allowed to move from the quarantine pens to the slaughter pens for immediate slaughter.

At the close of the year there were 7,718 Australian sheep under hold order at the San Diego Port and 10,227 at a Norwalk, Los Angeles County, slaughtering establishment. Approximately 800 of the sheep at Norwalk were holdovers from the July shipment.



In the foreground are some of the 25,652 lambs which were imported from Australia in 1959. In the background is the S.S. Delfino, an ocean liner converted to a sheep carrying transport vessel. Right, Veterinarians inspecting lambs imported from Australia. All imported sheep were held in quarantine for minimum of 30 days.

### **Tuberculosis Eradication Program**

The bureau, in co-operation with the Animal Disease Eradication Division of the United States Department of Agriculture, continued the bovine tuberculosis eradication program in California.

Seventeen counties were redeclared modified accredited tuberculosis areas during 1959. Ten counties, Colusa, Glenn, Kings, Merced, Orange, Placer, Riverside, San Bernardino, Ventura and Yuba were remodified for a three-year period. Seven counties, Amador, El Dorado, Inyo, Lake, Lassen, Siskiyou and Tuolumne were remodified for six years.

Regulatory veterinarians conducted tuberculin tests on 637,235 cattle in 11,341 herds. Two thousand fifty-three reactors were found and slaughtered under state or federal meat inspection. This total reflects a reactor rate of 0.32 percent.

County veterinary livestock inspectors conducted 37,826 tuberculin tests which revealed 61 reactors. Additional tests were made by practicing veterinarians on 14,337 cattle with four reactors being found.

Regulatory veterinarians tested 103 goats and private veterinarians tested 59. None of the goats reacted to the test.

The use of the DAI Form 15 during the past year and one-half has shown that approximately 2 percent of California cattle are sensitive to the tuberculin test. Although sensitivity is found in about 17 percent of the herds tested, a very small number have tuberculosis. In order to be sure that tuberculosis is not involved, close attention is being given to these herds with comprehensive review of the history of the herd and the individual animals involved. In most cases, a representative number of the sensitive cattle are subjected to trial autopsy.

The infected herd file contained 133 herds on January 1, 1960, compared with 78 herds on January 1, 1959. Most of the herds in the infected file are actually negative. The increased number reflects a higher rate of condemnation or "sampling" of cattle reacting to the test.

## **BOVINE BRUCELLOSIS CONTROL<sup>1</sup>**

### **Calfhood Vaccination**

Once again, the number of calves officially vaccinated against brucellosis exceeded that for the preceding year. A total of 427,326 calves were vaccinated on 30,367 prem-

ises. These included 264,312 calves of dairy breeds and 163,014 of beef breeds. At the end of the year, a grand total of 3,990,196 calves had been officially vaccinated since the program started on January 2, 1948.

### **Brucellosis Area Certification Program**

As the year opened, 41 counties had been declared Brucellosis Control Areas.

Following public hearings held during the year, 11 additional counties became Brucellosis Control Areas, as follows: Madera and Merced on January 17, Mariposa on February 28, Fresno and Tuolumne on April 21, Kern and Tulare on May 15, Kings on June 28, Santa Barbara and Ventura on July 22, and San Luis Obispo on December 2.

Following additional hearings, Section 754.4 of the Administrative Code was amended on July 1 listing the remaining six counties, Imperial, Los Angeles, Orange, Riverside, San Bernardino and San Diego as Brucellosis Control Areas effective January 1, 1960. Thus, the entire State was either involved in, or committed to, the bovine brucellosis testing program at the end of the year.

The coveted status of modified certified brucellosis area was achieved by 24 counties during the year. These, with the effective dates of certification, were:

Amador, August 24.....	Nevada, June 9
Butte, May 26.....	Placer, November 30
Calaveras, October 28.....	Sacramento, April 21
Colusa, March 18.....	Shasta, April 15
El Dorado, September 24.....	Sierra, April 22
Glenn, August 17.....	Siskiyou, April 9
Humboldt, March 25.....	Solano, September 2
Lake, August 24.....	Sutter, September 2
Lassen, April 4.....	Tehama, April 11
* Marin, October 1958.....	* Trinity, Nov. 25, 1958
Mendocino, November 29.....	Yolo, May 30
Modoc, May 11.....	Yuba, September 20

\* Although actually certified during 1958, notification of certification was received for Marin County during April 1959 and for Trinity County February 24, 1959.

### **Changes in Brucellosis Laws and Regulations**

New sections and changes in the Agricultural Code relating to brucellosis, effective March 20, follows:

Section 260.25 made it unlawful for anyone other than a federal, state, county or municipal officer or an accredited veterinarian, to buy, possess, or use the official tattoo or mark used to identify cattle as officially vaccinated against brucellosis.

Section 260.85 made it unlawful for anyone other than a federal, state or county or municipal officer or an accredited veter-

<sup>1</sup> See *Quarterly Bulletin*, Volume 48, No. 3.



arian to buy, possess, or use vaccines or antigens containing brucella micro-organisms except in accordance with rules and regulations of the director. Section 754.7 of the Administrative Code, which became effective October 18, defined who may buy, possess and use these products and described the method of reporting their use.

Section 263.2 of the Agricultural Code was amended to provide that cattle reacting to a brucellosis test in a control area be immediately branded and identified and be slaughtered within 30 days.

Section 264.1 of the Agricultural Code was amended as an emergency measure on May 6 to provide for payment of indemnity for cattle reacting to a brucellosis test that were vaccinated for brucellosis after reaching 12 months of age, prior to January 1, 1957.

Following a public hearing, Section 754.2 of the Administrative Code became effective August 23. This section provided that on and after January 2, 1961, all female cattle of dairy breeds brought into the State shall bear evidence of official vaccination against brucellosis between the ages of 4 and 12 months and shall be accompanied by an official health certificate. Exceptions to this requirement are cattle consigned direct for slaughter and cattle of dairy breeds brought into the State for exhibition or theatrical purposes.

#### Brucellosis Tests Conducted in 1959

Brucella milk ring tests .....	12,513
Brucella milk ring tests, negative .....	10,320
Brucella milk ring tests, suspicious .....	2,193
Percent of milk ring tests negative .....	83%
Percent of milk ring tests suspicious .....	17%
Number cattle in ring negative herds .....	713,632
Number cattle in ring suspicious herds .....	242,687
Total herds blood tested (dairy and beef) .....	14,526
Total cattle blood tested .....	431,076
Total cattle represented in blood tested herds .....	990,614
Total cattle reacting positively to test .....	5,956
Percent infection in cattle tested .....	1.4%
Percent infection in cattle represented .....	0.6%
Dairy cattle blood tested .....	293,739
Dairy cattle represented in blood tested herds .....	625,755
Dairy cattle reacting to blood test .....	4,606
Percent infection in dairy cattle tested .....	1.5%
Percent infection in dairy cattle represented .....	0.73%
Beef cattle blood tested .....	137,337
Beef cattle represented in blood tested herds .....	346,859
Beef cattle reacting to blood test .....	1,350
Percent infection in beef cattle tested .....	0.98%
Percent infection in beef cattle represented .....	0.38%

#### Testing Curtailed

Due to a shortage of federal funds allotted to pay practicing veterinarians for collecting blood samples, the testing program was temporarily halted in six counties from October 1 to December 31. Counties affected were Fresno, Kings, Tulare, Kern, Santa Barbara and Ventura. Testing in these areas was planned to be resumed after January 1 by using savings made on fee testing in other areas of the State.

#### Bovine Brucellosis Tests in Noncontrol Areas

Lots tested .....	5,235
Cattle tested .....	42,528
Reactors found .....	328

#### Goats Tested for Brucellosis

Lots tested .....	197
Goats tested .....	2,955
Reactors found .....	1

#### Milk Whey Test Pilot Program

The program to evaluate the effectiveness of a test using milk whey in place of blood serum to detect dairy cattle infected with brucellosis was continued in Sonoma County in co-operation with the University of California and the United States Department of Agriculture.

Considerable data on the use of the whey test as a screening device is being collected to determine the practical value of the test as a field procedure. The project should be ready to evaluate next year. It appears that the whey test supplemented as necessary with the blood test will have the county in a position for modified certification by the fall of 1960. The whey test was also used in retesting infected herds in Marin County which had previously been certified by the use of both tests.

#### SWINE BRUCELLOSIS CONTROL

During 1959, only nine swine herds representing 254 head were certified under the voluntary brucellosis eradication program. One infected herd in Yolo County has continued an eradication program by segregation and repeated blood tests, with favorable results.

A meeting of the State-wide Swine Disease Committee was held in Sacramento on December 9, 1959. At this meeting, a new agreement for certifying swine herds was approved by the committee. The new agreement is in accordance with standards proposed by the U.S. Livestock Sanitary Association and approved by the ARS, USDA. This new program is now in effect, and

more participation by swine breeders is anticipated.

The majority of swine brucellosis testing in the State was on breeding swine offered for sale or exhibition at fairs. During the year, 242 lots including 1,246 samples were tested; 1,224 were negative, four were suspicious and 18 were positive.

## SCRAPIE OF SHEEP ERADICATION PROGRAM

In 1959, scrapie appeared in three flocks of Suffolk sheep. Two of the outbreaks were traced directly to the Grenville-Trentham flock in Canada. The origin of the third outbreak was not determined but appeared to be related to the Broadmead flock in Oregon which was destroyed in 1957 because of scrapie. These flocks and all exposed sheep which originated in these flocks were appraised, destroyed and indemnity paid to the owners. State and federal governments each paid \$77,605.12 for 1,944 sheep destroyed.

On March 20, 1959, Regulation 761 prohibiting the importation of sheep into California from Canada was adopted in order to prevent any further introduction of scrapie. On December 31, 1959, the regulation was repealed following a combined action by Canada and the U.S. Department of Agriculture. Canada established an eradication program for scrapie equivalent to the program in the United States and the U.S. Department of Agriculture regulations were amended to impose additional restrictions on sheep from Canada because of scrapie.

During the year, scrapie was found in one flock in Wyoming and in two flocks in Canada which had exported sheep into California in the past 42 months. The California sheep were considered exposed and therefore destroyed. Three hundred and ten sheep were destroyed with the State's share of the indemnity totaling \$7,795.26. A few progeny unborn at the close of the year will be destroyed during 1960.

### Summary of California Scrapie Outbreaks

Year	Flock	Number of flocks involved	Sheep destroyed
1952	Tracy	49	850
1952	Jessie	1	52
1955	Smith	1	184
1957	Vassar-Buckman	222	2,082

1957	Hutchinson-Whiteside	1	2,849
1957	Parrott Investment Company	1	7,088
1959	Vassar-Buckman	40	1,909
1959	Paasch	1	15
1959	Von Garden-Sinclair	5	20
Total: Nine outbreaks		321	15,049

### Scrapie Exposed Sheep Destroyed

(Source Flocks Outside of California)

Year	Outbreaks Flock	Number of flocks involved	Sheep destroyed
1957	Broadmead (Oregon)	57	650
1959	Faxon (Wyoming)	1	1
1959	Grenville-Trentham (Canada)	21	294
1959	Hudson (Canada)	5	15
Grand Total		405	16,009

The total state indemnity paid on sheep destroyed in California because of scrapie is \$392,633.40, and federal indemnity is \$363,180.70.

On December 31, 1959, there were 282 flocks including 202,674 sheep under surveillance because of possible exposure to progeny of scrapie infected sheep.

### Vesicular Exanthema (VE) Eradication Program

November 1959 marked the fourth consecutive year during which no cases of VE were reported. The U.S. Department of Agriculture announced on October 22, 1959, that vesicular exanthema of swine had been eradicated from the United States. Research workers including those in California using the vesicular exanthema virus for experimental purposes were requested to destroy the virus or obtain special permission for its use.

During the year, 308 licenses to feed garbage to swine were issued. There was frequent turnover of small operators going in and out of business and they constituted the main enforcement problem under the provisions of Section 216 of the Agricultural Code. A monthly average of 272 licensed garbage feeders fed an average of 180,000 head of swine throughout the year. All garbage feeding premises were inspected at least once per month in the outlying areas, and three inspections per month were made in the metropolitan areas where VE had been endemic, with at least one inspection being a health inspection by a veterinarian.

## 959 Summary Report on Enforcement procedures

Number of ranch inspections.....	10,413
Hold Orders issued, violations 216/216.3 Agricultural Code .....	59
Citation notices issued.....	79
Citations—district attorney (two) district court (six).....	8
Court trials (two pending trials in 1960) .....	4
Fines paid by defendants.....	\$580
Probation periods with fine (two cases) .....	3½ years

## ARTIFICIAL INSEMINATION

Cattle: Artificial breeding associations reported first service inseminations on 339,626 dairy cows during the year. Independent breeding services accounted for 13,500. Approximately 10 percent or 1,350 were beef cows. This makes a total of 353,126 first services. Reports indicated that approximately 70 percent of the cows are being settled on the first service with either fresh or frozen semen.

Extent of services: Artificial insemination services were active in 47 counties and approximately 37 percent of dairy cows in the state are now bred artificially.

Artificial insemination in other animals: Approximately 80 percent of turkey breeding flock owners are using artificial insemination practices during the breeding season. No reports on other livestock were received.

## LIVESTOCK AND POULTRY PATHOLOGY LABORATORIES

During the past year, the four general laboratories expanded their interests and facilities to undertake additional studies of lesions from tuberculosis reactor cattle.

Each laboratory has reconstructed an individual room where tuberculosis organisms can be studied without the danger of exposure of other members of the laboratory.

Each unit is equipped or will be equipped with an individual unit with all the necessary laboratory devices in order to prevent the contamination of main laboratory equipment studying acid-fast organisms.

Additional training in the study of acid-fast organisms has been given to one member of each laboratory.

The main purpose of this increased laboratory activity with this group of organisms was to review previous work and improve current techniques to see if some explanation can be given to the nonspecific reactor problem encountered in California in the bovine tuberculosis eradication program.

## Sacramento Laboratory

This laboratory, since the new facility has been available, has hosted and gained a new relationship to the profession of veterinary medicine, the livestock industry, and to many people with interests in common from near and far. They have come as observers and to seek information about the facilities of the State of California, laboratory and disease-wise, from Japan, India, and Australia to the west, and Kenya, Iran, Egypt, Great Britain, and The Netherlands in the east. They have come from many of the states, New York to Hawaii, from the colleges and high schools of the Sacramento Valley, singly and in large groups, from the livestock industry, and the veterinary profession. In many cases, a variety of exhibits and demonstrations have been provided. The facilities and materials of the laboratory have been made available to those seeking knowledge and information, as well as performing the diagnostic function for which the laboratory was provided.

In 1959, the diseases of bovines most often diagnosed included Anaplasmosis, Leptospirosis, and the Clostridial diseases. Several others of considerable concern were Pasteurellosis, Anthrax, Johne's Disease, and Salmonellosis. The *Salmonella* isolates from bovines included *Salmonella dublin*, *S. livingston*, and *S. typhimurium*. The Anthrax was confined to an area in southern Sacramento and northern San Joaquin Counties and the Johne's Disease to an area immediately southeast of the City of Sacramento.

The diseases of ovines of most concern were Scrapie, which was diagnosed three times, and Bluetongue which presented an atypical picture and was not proven until blood samples were submitted to the ARS Laboratory, Denver. Anaplasmosis was diagnosed once in sheep, and a *Paracolon* of the Arizona Group was isolated from a case of lamb enteritis associated with corral lambing.

The most significant diagnosis in the porcine species during the year was mercury poisoning which was diagnosed in seven cases, usually attributed to antifungal agents associated with grain. Atrophic rhinitis, swine flu, and Salmonellosis involving *Salmonella typhi-suis* and *Salmonella loma-linda* were observed.

An ascending paralysis was seen in rabbits and was determined to be a condition described in laboratory rabbits as Encephalitozoonosis. Mucoid enteritis continued to be the most constant difficulty in this species.

The analyses and identification of many and varied undesirable entities in animal tissues and feedstuffs was the cause for some alarm. Nitrates in plants, nightshades, buttercups, cyanide in silage, zinc phosphide in feed, DDT, toxaphene, lead, arsenic, were all determined to be involved in animal mortality and morbidity.

White muscle disease continues to be observed in young cattle and sheep in various areas of the northern part of the State.

A meat scrap survey of 115 samples of livestock feed was conducted for enteric pathogens and resulted in the isolation of four organisms, *Salmonella minnesota*, *S. oranienburg*, *S. montevideo*, and a *Paracolon* of the *Bethesda* Group.

The large animal caseload increased about 8 percent in the past year which for the most part is attributable to an increase of 13.5 percent in bovine cases.

The diseases most often observed diagnostically in chickens at the Sacramento laboratory were Lymphomatosis, Coccidiosis, CRD, Osteomalacia nonspecific Enteritis, and Synovitis, in the order of highest incidence. While not numerically so prevalent, Candidiasis and Hemorrhagic Syndrome, along with the above-mentioned Osteomalacia and Lymphomatosis, were diagnostically and therapeutically felt to present the most difficult problems.

In contrast to last year, where the problem involved turkeys, chicken layers seemed to be the most prone to Candidiasis. Circumstances indicated the possibility that antibiotic therapy might be involved.

Several "storms" of visceral lymphomatosis were noted throughout the year and it was observed that recent parenteral intervention of drugs and possibly parenteral vaccination occurred. The usual story indicated a preventive therapy aimed at assumed Infectious Hepatitis.

Of 61 diagnoses of Osteomalacia, the majority were caged layer hens on so-called complete feed which was lacking in particle size with reference to grit. It was felt that gizzard atrophy, a result of the lack of function and the resultant provision for assimilation, inhibitory ions in the drinking water, and the imbalances possible at times of calcium stress and calcium excess, contributed to this problem which is apparently more prevalent in this area than in other areas of the State.

Erysipelas in chickens elaborating a marked caseopurulent cellulitis of the head was di-

agnosed. The organism was isolated in pure culture from the exudate. This is the first such diagnosis at this laboratory.

Mycoaserosaccitis, Coccidiosis, nonspecific Enteritis, and Infectious Synovitis were numerically the most significant diseases seen in turkeys. Fowl Cholera, Lymphomatosis, and Salmonellosis were next in importance. Only one case of Erysipelas was diagnosed which is unusual and probably due to sound vaccination procedures. The *Salmonella* organisms causing difficulty most often were *Salmonella bredeny*, *S. typhimurium* and *S. heidelberg* in that order.

A serious outbreak of paratyphoid in geese used in an orchard for weeding resulted in the isolation of *Salmonella typhimurium*. Losses were heavy and a problem evolved around a method of treatment while getting the primary function performed.

#### Fresno Laboratory

In 1959, respiratory diseases continued to be the major disease problem in chickens, and chronic respiratory disease accounted for considerable economic loss to the turkey industry, principally the loss of potential breeder flocks and flocks in production.

An infectious laryngotracheitis outbreak in the Dinuba area seemingly was arrested because there has been no reported infection since the outbreak which occurred in December 1958. One relatively large chicken breeder flock has had this latter infection but the disease has not been a problem for it apparently was of low virulence and was sporadic throughout the ranch. The infection was self-limiting since no vaccination was used to control this outbreak.

Since August, a number of replacement pullet flocks between the ages of 6 weeks and 14 weeks have been experiencing difficulty with anemia and gizzard erosion. Presumptive evidence indicates a mycotic entity. In addition to this problem a significant number of laying flocks have been troubled with low production. Many such flocks never reach their peak and other flocks attain a satisfactory peak of production but rapidly decline with subsequent fluctuating production. A mucoid enteritis has been the most consistent necropsy finding.

During the 1959-60 blood testing season, *Salmonella typhimurium* testing increased 200 percent and it is gratifying to note that only one flock yielded an infected reactor



which was established by necropsy and bacteriological studies. This rate of infection in reeder flocks is reflected in the low incidence of this disease in poults which, in previous years, was responsible for from 20 to 50 percent of the paratyphoid infection.

The incidence of bovine abortions remained somewhat constant but there was a significant increase in epizootic bovine abortion as described by Howarth. Leptospiriosis, vibriotic and other bacterial agents accounted for the major part of the problems investigated. *Clostridium sordelli* has become the predominating clostridial infection. Salmonellosis is one of the major disease threats in calves, and *Salmonella dublin* the predominate isolate, but it is of interest that nine additional species have been associated with this disease syndrome as compared to five strains in the previous year. The coli-paracolon group are causing an increasing number of gastroenteritis outbreaks in calves and accounting for considerable mortality. Colibacillosis and paracolon infection are comparable to Salmonellosis and are often difficult to control unless strict sanitation is practiced. Leptospiriosis, as evidenced by 25 percent positive serological findings and the results of laboratory examination of submitted specimens, associated with mortality as well as accounting for a considerable number of abortions.

Ovine anaplasmosis was diagnosed in a two-year-old ewe. This disease is of special interest because it is the first reported in the area serviced by the Fresno Laboratory. This diagnosis was confirmed by susceptible lamb transmission trials.

*Salmonella infantis* was responsible for an outbreak of gastroenteritis in nursing pigs. This outbreak is unusual because of the relatively long duration of time from the onset to termination. No acute mortality and no morbidity in animals less than two weeks of age was observed. The syndrome was evidenced by anorexia resulting in progressive emaciation and death within two to three weeks.

*Leptospira ballum* was demonstrated serologically as a possible cause of sporadic, acute mortality in one swine herd.

#### **Fresno Gabriel Laboratory**

In the area served by this laboratory, one veterinarian, who has a private poultry disease laboratory, and two other veterinarians, employed by commercial poultry enterprises, are doing considerable diagnostic work

which was formerly submitted to this laboratory. This has resulted in a material decrease in the number of poultry cases, compared with former years.

Because of severe disease problems in pullets raised for replacements on egg production plants, many poultrymen have resorted to the purchase of pullets at about 16 weeks of age. This practice failed in numerous instances to solve the disease problem. A study was made of a nervous disorder in a pullet growing plant, which had characteristic signs of botulism. It was concluded that the condition was a type of nutritional encephalomalacia.

Parasitic, nutritional, digestive, and reproductive diseases are of minor importance, but respiratory infections are still so serious that many poultrymen are unable to survive economically.

Vaccines are available and are widely used to prevent some of the respiratory infections, and much money is expended for drug treatments. These measures are only helpful, and it is necessary for poultrymen to carry out extreme disease control measures on the ranch, in order to alleviate the seriousness of the complicated respiratory diseases.

The volume of diagnostic work of animals other than poultry remains rather constant year after year. No cases of unusual importance were presented for diagnosis during 1959. Bovine abortions, due to undetermined causes, continue to plague the cattle breeding industry.

We have undertaken the development of tissue culture techniques, which we hope will aid in diagnosis and give us a better understanding of some of the virus diseases of animals and poultry.

A considerable amount of work is being done in co-operation with other services of the department. Bacteriology of water samples from the Bureau of Meat Inspection and Poultry Inspection, and salmonella testing of poultry, are examples. Also, agglutination tests for the brucellosis program, and detailed studies of bovine tuberculosis suspects aid the department in control programs.

#### **Petaluma Laboratory**

Again in 1959 there was a larger overall work volume than in any preceding year in the history of the laboratory. Over the work volume of the preceding year there was an increase in large animal and poultry



diagnostic work and in serology. Poultry work has shown an upward trend for the first time since 1953, though decreases had stopped in 1958.

Infectious hepatitis, intestinal coccidiosis and infectious coryza had all increased noticeably for the second year in succession. Infestations of capillary and ascarid worms decreased. There was only one instance of pullorum disease in chicks. There was one instance of ornithosis in imported birds. A Newcastle disease virus of marked virulence was isolated from imported birds also. *Pasteurella gallinarum* was isolated over twice as many times from chickens as was the typical fowl cholera organism, *Pasteurella multocida*. It is found in chronic sinusitis, chronic lower respiratory diseases and acute septicemic infections. These organisms may at times be very resistant to any of the commonly used broad spectrum antibiotics. There was some increase in *Staphylococcus* and paratyphoid isolations from turkeys.

With regard to large animal diseases, there was a noticeable decrease in instances encountered at the laboratory, of Clostridial infections, leptospirosis, and of paratyphoid infections. The overall numbers of specimens submitted increased and more instances of epizootic abortion and Johne's disease occurred. There was a decided increase of enterotoxemia in calves, often occurring in animals still on a milk diet.

*Salmonella typhi-suis* infection in swine occurred again in Santa Cruz County and for the first time in Sonoma County, but did not become a very serious area problem.

An acute disease occurred in one flock of lambs and ewes, causing polyarthritis and fatal septicemia. An organism was isolated that was very similar to, if not identical with, *Hemophilus agni*, recently described by University of California workers.

From a case of epididymitis in a ram, an organism commonly called *Brucella ovis*, was isolated. It caused extensive caseous lesions and loss of the ram. This infection has not been previously diagnosed at the Petaluma laboratory.

In an instance of an outbreak of disease in one large group of hogs, evidence of the following infections were found: atrophic rhinitis, hog cholera, *Salmonella typhi-suis* infection, *Salmonella typhimurium* infection, *Salmonella infantis* infection, and *Pasteurella multocida* infection.

### **Turlock Poultry Laboratory**

The total number of cases handled at the Turlock poultry pathology laboratory for the year 1959 increased a little less than 3 percent over the year 1958. The total laboratory volume in 1958 was 4,713 cases with 13,180 specimens examined. In 1959, the total was 4,842 cases with 14,477 specimens examined.

The disease picture in chickens is about the same as reported for 1958. Chronic respiratory disease, infectious hepatitis, coccidiosis and enteritis are still the leading disease problems.

In turkeys, there has been a noticeable drop in the diagnoses of coccidiosis and enteritis over the previous year. In 1958, 6.5 percent of the total number of diagnoses were coccidiosis versus 5.3 percent in 1959. Enteritis shows 19 percent in 1958 and only 11 percent in 1959. Infectious hepatitis and air sac infection continue to be leading turkey disease problems. We have never found a uniformly satisfactory therapy for air sac infection in turkeys. It is policy in this area for growers to market breeder flocks at the first sign of air sac infection or sinusitis in the flock. A conservative estimate would be that 40,000 potential breeders went to market in this area during 1959.

### **Lancaster Poultry Laboratory**

The workload at the Lancaster laboratory remained approximately the same during 1959 as in 1958. The drop in fryer-broiler production in this area, which started in 1955, has leveled off this year with production very nearly the same as in 1958.

Turkey production in this area dropped from 1,200,000 last year to 825,000 birds during 1959.

Respiratory diseases are the main source of poultry losses in this area. Forty percent of the diagnoses made are of the respiratory nature. Chronic respiratory disease is the most common disease diagnosed. A non-specific respiratory infection, referred to as air sac infection, is also responsible for economic losses. This condition is thought to be secondary to other respiratory diseases and vaccinations and extreme weather conditions with substandard housing.

Laryngotracheitis still remains a major problem as in previous years. In most areas, chickens must be vaccinated by the time they are 4 to 4½ weeks of age during the fall and winter months. This year vaccina-

ion of chickens for this disease has also brought about problems. A large number of flocks vaccinated have had mortality from Laryngotracheitis at 9 to 18 days following vaccination.

Infectious hepatitis-synovitis in chickens continues to be a problem. However, medication early in the course of the disease prevents heavy losses.

Coccidiosis in chickens has not been a serious problem. Most cases diagnosed are of a mild nature. The low humidity of the atmosphere and use of coccidiostats apparently is responsible for these findings.

Air sac infection, sinusitis and infectious hepatitis synovitis constitute the main disease problems in the turkey population.

#### 1959 Summary of Laboratory Accessions and Serological Tests

Laboratory	Poultry accessions	Pullorum agg. tests	Typhi- murium agg. tests	Animal accessions	Brucellosis agg. tests	Brucellosis ring tests	Lepto- spirosis agg. tests
Acramento	1,081	206,157	184,375	698	109,421	4,149	1,335
Fresno	2,193	538,482	317,529	1,458	125,291	3,679	3,382
Fetaluma	1,979	58,404	53,560	707	126,041	2,748	802
San Gabriel	2,185	151,009	134,209	681	9,414	44	771
Merlock (poultry only)	4,842						
Manchester (poultry only)	809						
Totals	13,089	954,052	689,673	3,544	370,167	10,620	6,290

## Bureau of Livestock Identification

AUL G. ROBERTSON, Chief

ARSON L. HUBBARD, Assistant Chief

The Bureau of Livestock Identification serves the livestock industry of California by protecting them from loss of livestock by theft or straying. The prosecution of livestock thieves and the inspection services performed are a deterrent to would-be violators of the law.

The authorization for the functions of the Bureau are derived from the California Agricultural Code, Division 3, Chapters 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. The Bureau is financially self-supporting and operates from fees collected for services rendered.

### Brand Registration

The Hide and Brand Law provides for the registration of any design which is permanently impressed on the hide of cattle, horses, mules, burros and sheep to denote ownership and must be recorded with this Bureau before use. Brands for swine may be recorded, but it is not mandatory. The brand recording fee is \$2 and is renewable each year at the rate of \$2. Renewal fees may be paid in advance up to 10 years. When the renewal fee is not paid within the 30-day grace period after December 31,

the brand is suspended but may be reinstated within the year by payment of a \$4 reinstatement fee.

Brands may be transferred from one owner to another by recording the transfer and paying a transfer fee of \$2.

During 1959 there were:

New recordings	2,451
Reinstatements	978
Renewals	21,232
Transfers	530

### Licenses

The Bureau licenses all persons engaged in the slaughter of cattle and horses. The license fees range from \$20 to \$100, depending upon the monthly volume of slaughter. Persons engaging, as a business, in the sale of cattle at a public salesyard are required to procure a license and post a bond in the amount of \$1,000. The license fee is \$100. Stockyards posted by the United States Department of Agriculture under the Packers and Stockyards Act are exempt from this license provision. Representatives of the U.S. Department of Agriculture posted a major portion of the salesyards in the latter

part of 1959, which accounts for the decrease in license renewals as compared to the previous year.

Licenses issued:	1959	1958
Cattle slaughterers _____	122	177
Horse slaughterers _____	9	13
Public salesyards _____	43	66

### Lost, Strayed or Stolen Animals

A weekly bulletin is published by the bureau which contains a complete description of each animal reported missing, a copy of which is sent to all brand inspectors and sheriffs' offices. Many animals stray from home pasture without the knowledge of the owner, and, therefore, are not reported missing. These animals are returned to the owner when located. Thus it is possible to have more animals returned than are reported missing. Also, an animal may be reported missing in one year and returned in the next year. In 1959 the total value of animals returned to their owners was in excess of \$300,000.

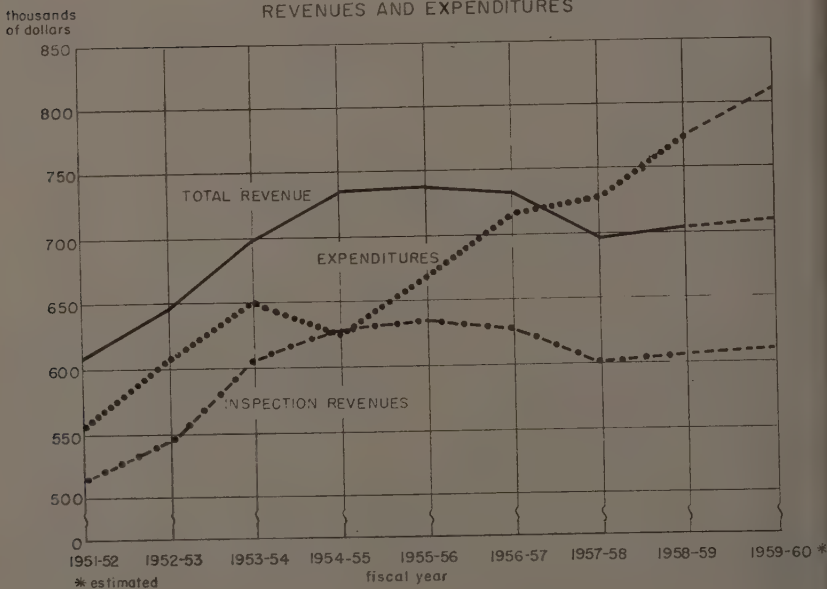
### Animals returned to owners in 1959:

	Reported missing	Returned	Value of animals returned
Cattle	1,330	1,987	\$286,487
Horses	47	80	14,800
Sheep	774	100	2,281
Goats	0	3	11
Swine	60	6	219

### Estrays

Estray animals are those found in possession of persons other than the true owner or being held without his knowledge or consent. Estray animals are seized by the department and advertised as required by law. Animals not claimed by the rightful owner within 30 days are sold at public auction. Any person, upon proper proof of ownership, may claim the proceeds of such sale within one year. Cases opened in a prior year and sold during 1959 account for the number sold exceeding the number seized. Animals seized during 1959 and neither re-

### LIVESTOCK IDENTIFICATION INSPECTIONS REVENUES AND EXPENDITURES



turned nor sold are carried into the following year. Unclaimed proceeds are paid into the Department of Agriculture Fund.

Estrays handled in 1959:

	Seized	Sold	Returned	Value of animals returned
Cattle .....	129	76	47	\$5,664
Horses .....	23	14	11	713
Sheep .....	21	15	3	90
Goats .....	33	34	0	0
Swine .....	12	11	0	0

## Brand Inspection

The one activity of the bureau requiring the greatest amount of time and involving the largest expense is inspection of animals for marks and brands. There are two types of inspection maintained in California today; point of origin and destination. In counties and geographical areas where cattle shipments require inspection before shipment, the point of origin inspection is maintained. These areas are established when 65 percent of the cattle owners, present and voting at a public hearing, request inspection prior to the movement from that area. Cattle shipped from areas, other than point of origin, which are destined to slaughterhouses, salesyards, or stockyards are inspected at destination.

Regular inspection service is maintained in all cattle salesyards, posted stockyards, private dispersal sales and slaughterhouses. Allow works and hide companies also receive inspection. Horses are inspected only at slaughterhouses prior to slaughter.

A field force consisting of 102 brand inspectors and 10 supervisors is maintained to carry out the functions of the bureau. The physical inspection of animals and hides, constituting the major activity of this force, totaled 6,010,980 inspections for the year of 1959.

The principal source of revenue for the operation of the bureau is derived from brand and inspection fees. The fee structure was established in 1949 to allow for the accumulation of a workable surplus of funds to insure the service against unforeseen events and fluctuation in the movement of cattle. Graph I illustrates a uniform relationship between revenue and expenses for the first three years, with a leveling off of revenue for the next period and a decline at the end.

The costs show a continuing increase throughout the entire period. The surplus accumulated during the early part of the period has enabled the bureau to continue its services by drawing upon this fund during

the past two years. The number of paid inspections during this period have ranged from 4,500,000 to 4,865,000. If the present trend should continue, the inspection service could only be continued by drawing on the surplus fund for approximately two or three years without a change in fee structure.

## Enforcement

An important function of the field staff is the investigation of cattle theft complaints and prosecution of cattle thieves. Bureau officials assist local law enforcement agencies in the collection of evidence and presentation in court cases. Convictions of violators of the Hide and Brand Law may result in one of three types of sentence or a combination of these; restitution to the victim, a jail sentence and a fine.

There were 178 warning violations issued for various infractions of the Hide and Brand Law during 1959. The following table shows the results of the bureau's enforcement activities for the year:

<i>Grand theft cases</i>	
Complaints filed .....	46
Convictions .....	42
Acquittals .....	15
Cases pending .....	2
<i>Sentences</i>	
State prison .....	4
County jail .....	16
Probation granted .....	23
Restitution ordered .....	24
Fines .....	\$2,075
<i>Misdemeanor cases</i>	
Complaints filed .....	39
Convictions .....	26
Acquittals .....	5
Cases pending .....	6
Fines .....	\$1,602

## Beef Council

The bureau serves as the collection agency for the California Beef Council, as provided by legislation passed in 1957. The law provides for the collection of 10 cents per head on all cattle inspected except hides, cattle shipped for purposes other than sale, animals less than three months of age, and animals sold for reproduction purposes. Collections in 1959, amounting to \$127,495, were transmitted to the Beef Council for the promotion of beef and beef products produced in California.

## New Legislation

Two changes were made in the Hide and Brand Laws by the 1959 Legislature. The section of the law pertaining to Beef Coun-

cil exemption certificates was amended to clarify the effective period of the certificate. Upon receipt of a request, a certificate is issued which shall be effective for the remainder of the fiscal year in which issued.

A change in the slaughter section was made to allow animals slaughtered for a producer on his premises to be transported to a licensed frozen food plant with the hide on after the complete removal of the

viscera, head and feet. The skinning, splitting and quartering at the frozen food plant shall not require a slaughterer's license.

#### **Public Relations and Training Film**

Work was started in October on the production of a 25-minute color sound film depicting the work of the bureau. The film will be used for showing to schools, service clubs and the general public.

## **Bureau of Meat Inspection**

DR. R. W. McFARLAND, *Chief*

DR. G. W. YEAGER, *Assistant Chief*

Nineteen hundred and fifty-nine marked the 42nd year of state meat inspection. Beginning in 1917 with one plant under voluntary meat inspection, the service has grown with great strides. At the end of the calendar year, inspections were being conducted in 361 establishments in 37 counties, extending from the Oregon border to the Mexican border. Of this number, 41 were solely slaughtering establishments, 16 conducted both slaughtering and processing, and 304 establishments engaged in meat processing only.

In addition, supervision was maintained over 50 processing establishments operating under the Approved Municipal Meat Inspection Service of the City of San Francisco. During the year the one establishment operating under state approved municipal meat inspection in the City of Marysville transferred to federal inspection; this action left San Francisco as the only city in the State conducting its own meat inspection service.

The number of exempt plants remained at two, the same as the previous year. Exempt plants are small slaughter houses in isolated locations in counties where meat inspection is mandatory, but which have been granted exemption from inspection by the director under Section 307(d) of the Agricultural Code because it is impractical, or impossible, to assign an inspector to the plant.

Although the total number of state inspected establishments decreased by five

from the near all-time high of 1958, the total weight of meat products processed increased phenomenally from 222,659,538 pounds in 1958 to 257,730,701 pounds in 1959, an increase of 35,071,163 pounds, or almost 16 percent, over 1958.

The establishments operating under approved municipal inspection manufactured 22,267,178 pounds of meat food products, a decrease of 5,147,811 pounds or 19 percent under the previous year.

Also of significance is the fact that 1,414,176 animals were slaughtered in state plants in 1959, an increase of 78,343 animals or 6 percent over 1958.

The inspection of animals in abattoirs, and of meat products prepared in processing plants for human consumption in California, is authorized in Sections 301-319 of the Agricultural Code. The inspection of foreign cold storage meat is provided in Sections 321-325 of the code. Enforcement of these laws is vested in the Bureau of Meat Inspection. The law provides important state meat inspection exemptions for: (1) counties of less than 28,000 population; (2) specific operations in retail meat markets; (3) farmers slaughtering animals from their own herd on their own premises for their own consumption, and (4) foreign cold storage meat produced in and imported from Canada.

#### **Humane Slaughter Regulations**

Five states, including California, enacted humane slaughter statutes in 1959. California was the first state to issue detailed slaughter



regulations which were added to the Administrative Code on December 31, 1959. These regulations will affect state agencies and packers contracting with state agencies for the sale of meat. The effective date is July 1, 1960. The purpose of the regulations is to assist the Department of Finance and other state agencies in the enforcement of Section 13392.3 of the Humane Slaughter Law. As required in the law these regulations conform so far as possible with the regulations of the United States Department of Agriculture governing humane methods of slaughtering.

During the 1959 Session of the Legislature several other laws were passed affecting meat inspection including:

(1) Senate Bill No. 1288, Chapter 1433 amended Section 357.1 of the Agricultural Code to eliminate the necessity of licensed frozen food locker plants from obtaining a slaughterer's license and being subject to official meat inspection requirements in order to skin, split and quarter cattle which have been slaughtered by, or for, the producer at his premises and for his own consumption.

(2) Assembly Bill No. 2237, Chapter 1404 amended Sections 321 and 323 of the Agricultural Code. The amendment: (1) authorizes the use of either tag or brand on foreign cold storage meat; and (2) effective July 1, 1960, removes license requirements on retailers and eating places selling foreign cold storage meat.

#### Meat Inspection Laboratory

During 1959, the meat inspection laboratory examined 2,671 samples of various products and materials for adulterations, contamination, preservatives, artificial coloring, net weights, and excessive amounts of added water or fillers to sausage and other meat products. The tabulated results of these examinations are as follows:

This total reflects an increase of 633 samples or 31 percent over 1958. The increase in chemical laboratory control is necessary to keep pace with the increasing amount of

meat products produced in state establishments. Meat inspection personnel were assisted in biological laboratory control on water samples, histological, pathological and parasitical samples and specimens by the Poultry and Livestock Pathology Laboratories of the Bureau of Livestock Disease Control.

#### Labels

During the year 2,898 labels and sketches were reviewed and acted upon. Of this number 121 were not approved because they did not comply with labeling requirements. Many labels not listed in the above figure were returned without action for varied reasons. Many label sketches were tentatively approved with the understanding that certain corrections would be made when label was printed in final form.

#### Foreign Cold Storage Meat

Foreign cold storage meat imported into the State continued in the tremendous upward spiral started in 1955. A total of 90,097,517 pounds of foreign cold storage meat was inspected in 1959 representing an increase of 21,962,773 pounds or 32 percent over 1958.

Foreign cold storage meat required 3,881 hours for inspection, the traveling of 8,853 miles incident to the inspection, and the collection of \$12,487.36 in inspection fees.

Licenses issued for handling foreign cold storage meat and license fees collected were as follows:

TABLE 2

Type license	Number	Fee	Total
Retail	1,460	\$10	\$14,600
Restaurant	67	5	335
Wholesale	121	25	3,025
Importer	25	25	625

Total license fees collected \$18,585

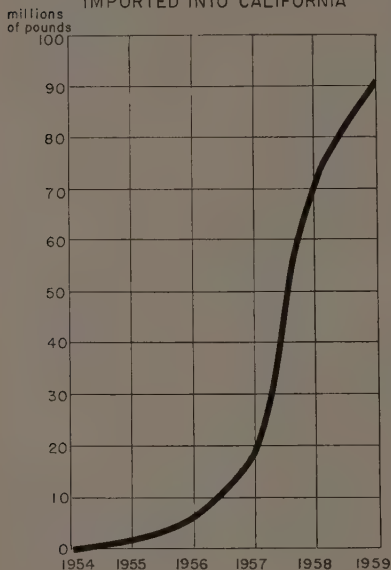
Chart No. 1 shows the increase in foreign cold storage meat imported into the State in recent years.

TABLE 1

Product	Passed	Not passed	Not classified *	Total
Meat and meat products	1,998	305	18	2,321
Edible oils and fats	11	8	0	19
Curing materials	133	20	5	158
Spices, cereals, condiments	136	19	0	155
Miscellaneous	13	5	0	18
Totals	2,291	357	23	2,671

Samples not in suitable condition for proper analysis.

# FOREIGN COLD STORAGE MEAT IMPORTED INTO CALIFORNIA



## Construction

Fifty-one plans for establishment construction were approved during the year. In 1958 there were 55 plans approved. These projects included entirely new buildings for both slaughtering and processing as well as remodeling of existing structures. For the most part construction has been completed.

## Violations

During 1959, minor violations of the meat inspection provisions of the Agricultural Code resulted in 18 investigational hearings

and the issuance of 34 notifications of violation.

## Condemnation Summary

During the year 3,482,198 pounds of meat and meat products were condemned as unfit for food. This total included 6,777 animals and carcasses condemned on ante and post mortem inspection, 288,427 parts condemned on post mortem inspection, and 656,514 pounds of processed meat products. Under state approved municipal inspection 124,053 pounds of processed meat products were condemned.

There were 522 cattle and calves retained for *Cysticercus bovis*, an increase of 173 over last year. Of these, six carcasses were condemned as unfit for food, 246 were passed for food after freezing or cooking, and 270 were unconditionally passed for food after removal and condemnation of a single dead parasite.

A total of 847 carcasses were retained for tuberculosis, and of this number, 31 were condemned as unfit for food.

The high rate of condemnation of cattle livers for flukes and abscesses continued. During the year 41,322 cattle livers were condemned for abscesses while 77,576 cattle livers were condemned for fluke infestation. These two causes alone accounted for 1,232,700 pounds of condemned liver. Twenty-seven and one-half percent of all cattle livers inspected were condemned for abscesses or flukes, the same percentage as in 1958.

Table 3 shows the number of animals slaughtered at state and federal establishments in 1959, the number of whole carcasses condemned and an estimated number of animals slaughtered in uninspected establishments and on farms.

TABLE 3

Species	State inspection		Federal inspection		Total	
	Inspected	Condemned	Inspected	Condemned	Inspected	Condemned
Cattle	431,281	1,361	1,772,322	3,795	2,203,603	5,156
Calves	195,282	752	260,654	2,059	455,936	2,811
Sheep	582,035	4,074	1,803,904	11,769	2,385,939	15,843
Swine	203,415	582	1,630,486	3,334	1,833,901	3,916
Goats	2,163	8	—	—	2,163	8
Total	1,414,176	6,777	5,467,366	20,957	6,881,542	27,734

## ESTIMATED UNINSPECTED SLAUGHTER

Cattle	Calves	Sheep	Swine	Total
19,000	29,000	52,000	63,000	163,000

Estimated uninspected slaughter includes animals slaughtered (1) on farms, (2) in uninspected establishments located in counties of less than 28,000 population in which compulsory meat inspection is not operative, and (3) in establishments operating under exemption in other counties.

# **Number of Carcasses and Pounds Condemned for Various Diseases and Conditions** January-December 1959—State Inspection

<i>Diseases and Conditions</i>	<i>Cattle</i>	<i>Calves</i>	<i>Sheep</i>	<i>Swine</i>	<i>Goats</i>	<i>Total</i>
Actinomycosis and Actinobacillosis.....	15— 6,776	.....	.....	1— 40	.....	16— 6,816
Anaplasmosis.....	11— 5,666	.....	.....	.....	.....	11— 5,666
Arthritis and other bone diseases.....	22— 9,292	27— 1,667	127— 5,372	12— 1,673	.....	188— 18,004
Asphyxia.....	1— 300	2— 145	2— 125	.....	.....	5— 570
Caseous Lymphadenitis.....	.....	.....	1,428— 63,014	.....	1— 50	1,429— 63,064
Coccidioid Granuloma.....	4— 1,415	1— 165	.....	.....	.....	5— 1,580
Contamination.....	.....	.....	1— 60	236— 41,535	.....	237— 41,595
Cysticercosis.....	7— 3,543	.....	8— 467	1— 150	.....	16— 4,160
Cystitis.....	8— 4,023	.....	5— 255	.....	.....	13— 4,278
Dropsical diseases.....	25— 12,207	2— 115	3— 148	2— 245	.....	32— 12,715
Emaciation.....	30— 11,263	210— 10,181	1,351— 54,459	.....	2— 48	1,593— 75,951
Erysipelas.....	.....	.....	.....	4— 581	.....	4— 581
Hepatitis.....	.....	.....	1— 49	.....	.....	6— 2,819
Hog Cholera.....	5— 2,770	.....	.....	1— 176	.....	1— 176
Icterohemoglobinuria.....	.....	.....	.....	.....	.....	5— 250
Icterus.....	11— 5,091	66— 3,618	.....	.....	.....	332— 27,501
Immaturity.....	.....	229— 9,962	191— 8,800	64— 9,992	.....	229— 9,962
Injuries.....	26— 11,779	15— 1,366	4— 229	4— 556	.....	49— 13,930
Malignant edema.....	1— 1,000	.....	.....	.....	.....	1— 1,000
Melanosis.....	1— 516	2— 115	.....	2— 273	.....	5— 904
Merritis.....	81— 42,171	.....	22— 969	3— 496	.....	106— 43,636
Miscellaneous.....	4— 1,918	1— 80	6— 260	1— 193	.....	12— 2,451
Neoplasms.....	97— 43,945	3— 585	3— 116	1— 177	1— 50	105— 44,873
Nephritis.....	14— 6,327	7— 561	5— 237	5— 665	.....	31— 7,790
Omphalophlebitis.....	2— 850	18— 954	.....	.....	.....	20— 1,804
Parasitic.....	1— 400	.....	3— 120	.....	.....	4— 520
Pericarditis.....	242— 118,336	1— 200	11— 522	1— 458	.....	255— 119,516
Pneumonia, pleurisy, enteritis, peritonitis, etc.	204— 92,792	133— 10,907	633— 29,024	128— 18,320	4— 185	1,102— 151,228
Pregnancy advanced and recent parturition.....	15— 7,939	.....	.....	.....	.....	15— 7,939
Sarcosporidiosis.....	15— 7,448	.....	.....	.....	.....	15— 7,448
Septicemia and pyemia.....	507— 240,186	27— 3,688	265— 12,680	88— 13,441	.....	887— 269,995
Sexual odor.....	.....	.....	.....	21— 3,486	.....	21— 3,486
Skin diseases.....	6— 3,104	1— 60	.....	1— 175	.....	2— 235
Toxemia.....	6— 2,805	1— 300	.....	.....	.....	12— 3,499
Tuberculosis.....	.....	.....	.....	6— 844	.....	13— 3,949
<b>Total</b> .....	<b>1,361— 643,862</b>	<b>752— 45,064</b>	<b>4,074— 177,156</b>	<b>582— 93,476</b>	<b>8— 333</b>	<b>6,777— 959,891</b>

# Bureau of Poultry Inspection

L. E. BARTELT, D.V.M., *Chief*

H. W. STAGGS, D.V.M., *Assistant Chief*

The Bureau of Poultry Inspection is in its third year of enforcement of poultry inspection laws adopted by the 1955 Legislature.

The function of this bureau is, through inspection, to provide the consumer with a source of wholesome poultry and rabbit meat. The fact that the product has been inspected for wholesomeness is indicated by the Department of Agriculture's approved inspection legend.

The bureau is charged with the enforcement of those sections of the Agricultural Code pertaining to the sanitary processing of poultry and rabbit meat, the inspection of such meat for wholesomeness, the minimum construction requirements of the processing plants, and the licensing of plants.

The provisions of Articles 1 and 2 of Chapter 3, Division 3 of the Agricultural Code, enforced by this bureau, became effective July 1, 1956.

## Poultry Law Amendments

The 1959 Legislature made several changes in Articles 1 and 2 of Chapter 3, Division 3 of the Agricultural Code which were for the primary purpose of clarifying interpretations being placed on the sections involved. The definition of "poultry plant" was clarified by adding the words "cooked, cured or smoked" even though the words "or otherwise prepared for human food" were already in the definition.

The definition for "wholesome" was reworded slightly in order to make it clear that all conditions that would render poultry meat unsuitable for human food would be considered not wholesome.

The USDA exemption for wholesomeness, where their mark appeared, was clarified specifying that the mark must be on the immediate containers or carcasses of the poultry inspected by the USDA when offered for sale or sold.

The Legislature also extended the exemption for New York dressed poultry to No-

vember 1, 1963, and made the definition for "poultry meat" the same in both articles.

## New Legislation

In 1959 legislation was enacted which would limit the water content of poultry meat to 4 percent, or in excess of any greater amount that may be established by regulations of the director as necessary in good commercial processing techniques consistent with protection of the interests of the consuming public.

Since the passage of this provision, satisfactory methods of determining added moisture content have not been developed and it has also been observed that fresh poultry meat will not absorb and hold added moisture to the extent that it becomes a problem. However, with increased emphasis being placed on sales of frozen poultry, a problem in this field may develop.

## Processing

During 1959 the poultry processing plants operating under state supervision reported processing 83,692,557 pounds of ready-to-cook poultry. An undetermined amount was dressed as New York dressed poultry which is not required to be reported.

## Condemnation Summary

During 1959 a total of 838,139 pounds of poultry meat were condemned. This total includes the weight of the whole carcasses as well as the parts trimmed and condemned.

TABLE 1

### Summary of Poultry Condemned, January 1-December 31, 1959

Class	Total number birds rejected
Chickens	225,879
Turkeys	3,134
Rabbits	8,010
Other poultry	1,961
Total	238,984

TABLE 2

**Summary of Poultry Processed,  
January 1-December 31, 1959**

*Ready-to-cook Weight Total*

chickens .....	71,542,114 lbs.
turkeys .....	6,439,148 lbs.
rabbits .....	4,225,263 lbs.
other poultry .....	1,486,032 lbs.
Total .....	83,692,557 lbs.

#### **Enforcement Activities**

The bureau is not only charged with the enforcement of wholesomeness and sanitary inspections in the state licensed poultry processing plants, but also must keep a close check on processed poultry in the channels of trade.

In order to prevent the sale of uninspected poultry meat, bureau fieldmen occasionally check retail stores. There are many known producer-operated plants operating under the exemption provisions, as set forth in Section 375.6, of the law. Considerable effort was spent in checking these plants to make certain they were not operating in violation of the law.

During 1959 bureau personnel conducted 680 inspections of exempt processing plants and retail stores. During the same year they conducted 21,586 official inspections of licensed poultry processing plants.

During 1959 one formal hearing was held. As a result of this hearing, the director revoked the plant license of an operator for his failure to operate his plant in a sanitary condition and also revoked the operator's poultry Meat Inspector license for his failure to satisfactorily perform the duties required of a PMI.

The bureau also obtained a temporary injunction enjoining a second plant operator from processing poultry in his plant in an unsanitary manner and under insanitary conditions.

Bureau personnel held seven informal hearings with processors who had been operating their plants in an insanitary manner, or who had failed to renovate their plants so that they would meet the standard set forth in the California Poultry Inspection regulations.

One hundred forty-five Notices of Violation were issued by bureau employees this year, 58 cited inadequate inspection of poultry meat for wholesomeness, 40 for insanitary conditions existing within the plants, 17 for mislabeling, 12 for failure to keep records as required by regulations, 10 for

operating a plant without a license and eight for building or remodeling of poultry plants without approved plans.

#### **Approval of Plans**

The poultry inspection laws require that plans or blueprints for the construction or remodeling of poultry plants be approved by the bureau prior to construction. Ninety-eight sets of such plans were submitted to the bureau for approval. All but nine were approved. The continued increase in the building of new plants and the renovation of existing poultry plants by the industry has enabled California processors to take advantage of the increasing demand for poultry products.

#### **Labeling**

Prior approval is required for the manner in which the poultry meat inspection legend is to be used by the plant. Labels bearing the inspection mark, and other printed matter, are also checked for misleading and deceptive statements before approval is given.

During 1959, 463 labels and sketches of proposed labels were received and approximately 421 approved in final form.

#### **Licensing**

As of December 31, 1959, 419 poultry processing plants were licensed by the bureau. Nine hundred ninety-nine licenses were issued to poultry meat inspectors.

TABLE 3

**Licenses issued and Fees Collected  
January 1, 1959-December 31, 1959**

Type of license	No.	Fee	Total
Poultry meat inspector's license	161	\$10	\$1,610
Poultry meat inspector's renewal license	837	5	4,185
Poultry meat inspector's renewal penalties	65	5	325
License to operate a poultry plant	443	40	17,720
Miscellaneous			175
Total			\$24,005

#### **Training of Inspectors**

In accordance with provisions of the poultry inspection laws which requires the bureau to hold training courses for poultry meat inspectors from time to time, a lecture-type program was presented at 25 night meetings throughout the State. Five hundred ninety poultry meat inspectors and other interested persons attended these meetings. Lectures were given on the causes of spoil-



age, chilling methods and sanitary processing procedure and approved types of poultry processing equipment. Training on wholesomeness inspection was also given. Specimens of diseased poultry were displayed and discussed at each meeting. Films, slides and charts were used as training aids.

#### **Personnel Changes**

During this year, the personnel board approved the downgrading of two veterinarian I positions to that of senior poultry plant sanitation inspector and the upgrading of one poultry plant sanitation inspector to the senior level. The new senior poultry plant sanitation inspectors will be assigned to the north central, Los Angeles and south-eastern areas.

Prior to this year, for enforcement purposes, the State was divided into three areas. The southern area contained the largest number of poultry plants. There were 231 licensed plants in the 11 counties south and west of Kern County which comprised this area. It became apparent that an area of this size could not be satisfactorily supervised by one man; therefore, a new supervisory position was established and filled. The existing southern area was divided into two areas. The Counties of San Luis Obispo, Santa Barbara, Ventura and the northern two-thirds of Los Angeles County were designated as the Los Angeles area. The remaining counties became the southeast area.

#### **Sale of Caponettes**

On December 10, the United States Food and Drug Administration reported that the poultry industry had agreed to refrain from further sale of caponettes (chickens that had been treated with diethylstilbestrol). Several California plants which had specialized in the processing of this class were hard pressed to convert to the processing of roaster-type fowl. The main problem was their inability to obtain live poultry of suitable weights.

#### **Change in Processing Method**

During 1958 a decided shift in the method of processing poultry meat took place in California. Heretofore, all small processing plants had engaged in the killing, eviscerating and packaging of poultry. A considerable number of these small plants no longer kill and eviscerate. They now buy eviscerated poultry carcasses from larger plants and cut up and/or repack these carcasses to meet special consumer demands. A number of small processors have stated that the cost of buying eviscerated poultry is less than the cost of buying, killing and processing live poultry. On the other hand, the larger highly mechanized plants do not care to invade the specialized field now occupied by the smaller plants. Their reluctance to do so stems from the fact that much of the preparation of such specialties necessitates a great deal of hand labor and a highly mechanized plant does not lend itself to this type of operation.

# DIVISION OF MARKETING

The Annual Report for the Division of Marketing covers the calendar year 1959. On January 1, 1960, the Division of Marketing was split into two divisions and designated as follows:

(1) Division of Marketing Services

(2) Division of Marketing

The Division of Marketing Services includes the Bureaus of Fruit and Vegetable Standardization, Shipping Point Inspection, Agricultural Statistics and Market News. Mr. Harold W. Poulsen is Division Chief.

The Division of Marketing includes the Bureaus of Markets, Milk Stabilization, Market Enforcement and Weights and Measures. Mr. J. Frank Bennett is Division Chief.

In a general way, 1959 was characterized by a substantial increase in activities in all of the bureaus of the Division of Marketing. The work of several bureaus, especially the Bureaus of Milk Stabilization and Markets, has become complicated and problems have increased greatly. Practically all of the increased activity has resulted either from increased industry requests or increasing development of marketing problems.

Other criteria of growth include the number of employees and data on finances. During the year, the bureaus in the division employed nearly 450 permanent employees and about 1,000 seasonal inspectors. If the regular employees and seasonal inspectors of advisory boards, numbering over 600, are added to these figures, the total employees, both permanent and temporary, under supervision of the various bureaus in the division would approximate 2,000.

From a financial standpoint, the moneys received and handled by the various bureaus in the division would represent more than 58 percent of the total moneys received and handled through the department. This comes about by reason of the large sums of money handled by the Department of Agriculture for the various marketing order advisory boards, totaling \$8,500,000 in the 1959-1960 season. When this sum is added both to the totals of the department and of the Division of Marketing, it appears that the moneys handled by various bureaus in the Division of Marketing total more than \$14,000,000 out of about \$24,000,000 handled and expended throughout the entire department.

More comprehensive information of the activities carried on by the various bureaus in the division are shown in the separate bureau reports.

# Bureau of Agricultural Statistics

W. WARD HENDERSON, *Chief*

JOE E. MULLIN, *Assistant Chief*

## **Demand for Statistics Increasing**

During 1959 this bureau published and distributed 484,000 copies of 390 separate reports relating to the State's agriculture. The number of copies published in 1959 was up 6 percent from the 455,000 published in 1958. In addition, the bureau serviced about 5,500 individual requests for special information received by telephone, letter and personal visits. Increasing competitive pressures in agriculture and the growth of interest in marketing has resulted in expanded demands for improved statistical data and for new series of statistics. The bureau is attempting to meet these demands. There is a growing interest in probability sampling and objective measurements for crop forecasting in industry groups and the bureau is actively engaged in this phase of work.

The basic information for these statistical reports is obtained on a voluntary basis from thousands of farmers, stockmen, hatcheries, dealers, processors, warehousemen, transportation firms, merchants, marketing organizations, and others identified with the State's agricultural industry who make reports directly to this office. The bureau received substantial assistance from the county agricultural commissioners in the accumulation of basic statistics. In addition, considerable information is received from other state and federal agencies.

## **Objective Sampling Expands**

The use of objective sampling techniques to estimate production was continued for several crops and expanded to others. Clingstone peach, grape, walnut, and lemon projects were active in 1959. These projects were financed by state funds; federal funds, including those made available under the Research and Marketing Act; and moneys provided by interested industry groups. Beginning July 1 the Clingstone Peach Project was wholly financed with state and federal funds appropriated specifically for this purpose. Increased emphasis was placed on

formal statistical approaches to sampling of trees and parts of trees in orchards and to the use of multiple regression formulas for developing forecasts from objective counts and measurements. These studies are joint activities conducted with the University of California.

At the request of the wine industry the bureau engaged in a pilot study of aerial photographs taken during the raisin harvest season. From this study a sampling plan was developed for utilizing aerial photographs to develop estimates of the acreage of grapes laid for raisins at intervals during harvest. There is a possibility that this project will be undertaken in 1960.

The cotton yield objective measurement work was expanded in 1959. Monthly boll counts were made in 50 fields as in 1958. In addition, growth studies of cotton plants and bolls were inaugurated. These involved weekly observation of randomly selected plants in a subsample of fields in the San Joaquin Valley. This work is part of a nationwide research program conducted by the Crop Reporting Board of the U.S. Department of Agriculture.

Work was begun on an informal basis with the date industry to apply objective sampling techniques to the problem of forecasting the date crop. The bureau has provided technical assistance to the Date Administrative Committee whose personnel made objective counts and measurements in selected gardens. Assistance in analysis of these data is being provided.

## **Marketing Service Projects Continue**

Enumerative surveys of fruit and nut acreage were continued in 1959. These are financed by state funds matched with federal moneys obtained under the Research and Marketing Act. This work, carried on in co-operation with county agricultural commissioners, provides detailed statistics of bearing and nonbearing acreage by variety and age for the State's many fruit and nut crops.

The raisin lay survey to establish a preliminary estimate of raisin tonnage was made in September. At the request of the Raisin Administrative Committee, which financed the project, the report was advanced September 24 from the usual October 1 release. This fact, combined with a rain during harvest, and other factors contributed to the failure of this survey to perform as well as it had in previous years.

The enumerative survey of strawberry acreage by age of planting was conducted for the third year. This work is partly financed by the Strawberry Advisory Board and involves active co-operation of county commissioners in Monterey, Santa Cruz, and Santa Clara Counties. These data have proven very helpful to the industry in marketing and planning future production.

The survey of nurseries to establish the number of freestone peach, nectarine, and plum trees by varieties was continued in 1959 and pears were added to the report. These data meet a need for current information on trends in planting and varieties being used.

#### **New Work Begun**

The county statistics program made substantial progress in 1959, and became fully operative. Standardized reporting procedures for basic agricultural statistics were developed and approved by the State Association of County Agricultural Commissioners. Most commissioners adopted the standardized plan in issuing their 1959 county statistical reports. The bureau increased its activities in assisting county personnel in securing basic data needed to develop comprehensive statistics by counties.

Through an increase in federal funds, this bureau was able to expand its cattle on feed surveys from a quarterly to a monthly basis beginning in August 1959. These reports provide more current information concerning inventories of cattle being fattened in feedlots and have been sought by the cattle industry for several years. The Crop Reporting Board also placed cattle on feed reports on a monthly basis in Arizona and expanded quarterly reports in several states in the Midwest.

During 1959 the bureau was called on to develop several special reports on the trends and economic status of agriculture. This work was performed as a staff function and many reports were referred outside the department. Because of increasing concern

with the economic problems of agriculture, such special reports are expected to become a larger part of the bureau's program.

#### **Record Crop Output Despite Drought in 1959**

California farmers produced a record large tonnage of crops in 1959. A total of 31,921,700 tons of the principal crops were harvested from 8,624,100 acres, the largest harvested since 1954. Production in 1959 exceeded the previous year by 8 percent and was 15 percent larger than the 1950-57 average.

Field crop production surpassed all earlier years due to a record large acreage and high yields. Fruit and nut production was up 21 percent from 1958 and close to the record large output of 1951. Vegetable and melon production dropped 5 percent in 1959 but was still the third largest annual tonnage produced in California.

These production records were established in a year that was one of the driest on record. This was possible because the bulk of the State's crop production is grown on land that is irrigated. In addition, dry land crops in many areas produced satisfactory yields because soil moisture reserves were at a high level and rains were well spaced. Some land not usually irrigated was provided with supplemental moisture to maintain production.

Adverse effects of the rainfall shortage were restricted to a few local areas. Losses in dry land grain occurred mostly in the southern San Joaquin Valley and in Southern California. Grain yields were reduced on dry land acreage in scattered sections of Central California. Nonirrigated orchards and vineyards in coast counties suffered from a shortage of subsurface moisture during the summer.

#### **1959 Crop Value Also Record High**

The record large production pushed the value of crops produced during the year to a new high of \$1,925,135,000 which is 8 percent above 1958 and 14 percent higher than the 1950-57 average. Average prices for many crops were lower than in 1958 and heavier production accounts for most of the increase. These values do not include the value of livestock and poultry or their products, nor the value of flowers and nursery products. These data are not available at this time.

These value estimates do not represent income to farmers and are not comparable with cash receipts from farm marketings

which are computed on a calendar year basis. The value of crops produced is the gross value and includes all of the farmer's production expenses. In recent years two dollars of every three received by farmers have gone to meet production costs.

#### **Field Crop Production Largest in History**

Field crop production was a record 18,276,100 tons in 1959, and 8 percent larger than the previous year. This year's production exceeded the previous record set in 1957 by over 3 percent.

Field crop acreage harvested in 1959 was slightly larger than in 1958. An expansion in acreage of cotton, grain sorghum, rice, alfalfa, hay, sugar beets and corn more than offset reduced acreages of barley, other hay, and oats. Yields of most field crops were equal to or larger than those realized in 1958. Record yields were established for wheat, oats, grain sorghum, flaxseed, cotton, and sugar beets.

Field crop values increased 13 percent over 1958 and at \$910,250,000 approached the record level of 946 million dollars established in 1952, when wartime demand resulted in high prices for farm products. In 1959 California's cotton crop was valued at \$345,762,000.

#### **Fruit and Nut Production Increased Sharply**

Production of fruits and nuts during the crop year ending in 1959 reached 7,658,600 tons, up 21 percent from the light 1958 crop. This year's production was close to the record of 7,768,600 tons and the State's fifth largest. Deciduous tree fruit production was the second highest of record. All crops in this group were larger than last year and new record highs were recorded for Bartlett pears and nectarines. Grape production was the fourth largest in history. Tree nut production set a new record with almond production almost double the average. Citrus production was up sharply and the highest since the 1952-53 crop. A record crop of avocados was harvested but figs and olives were below average.

The aggregate value of fruits and nuts was \$572,427,000, only 4 percent above 1958 but 19 percent larger than average. For most crops, increased production resulted in lower prices in 1959 than the year before.

#### **Vegetable and Melon Production Down Slightly—Value Record High**

Combined production of vegetables, melons, and strawberries was down 5 percent

from 1958 due largely to the reduction in production of processing tomatoes. 1959 production, at 5,987,000 tons, was the third largest of record, however. Acreage harvested remained at a high level and was only 10,000 acres smaller than in 1958.

Aggregate value of these crops set a new record in 1959 reaching \$442,458,000. This was 5 percent above 1958 values. Higher prices for midsummer cantaloupes and summer and fall lettuce than in 1958 were responsible for the increase in value. These increases were partly offset by reduction in value of celery due to low prices and of tomatoes due to smaller output.

#### **Weather and Crop Development in 1959**

Rainfall during the 1958-59 season ranged from 20 percent to 70 percent of normal in the principal crop producing areas. Most of the precipitation for the season was received in January and February. After March 1 there was only one general storm over the State. Runoff from the light snow pack was substantially below normal but reserve water from the previous year provided a supply of irrigation water that proved adequate in most areas.

Most crops matured ahead of normal schedules in 1959 because of favorable winter and spring weather. There were no losses of significance from low temperatures. Fieldwork and plantings progressed on schedule during the winter and spring seasons. Killing frosts ended earlier than usual and the spring season was very favorable for the growth and development of crops.

Summer weather was considered favorable for the growth and development of most crops. There were periods of high temperatures, which caused minor crop damage but such losses were not of a serious nature. Temperatures generally remained above normal levels in the central and south coastal districts for the entire summer. In the central valleys, temperatures were above normal until mid-August, but dropped to slightly below normal levels for the balance of the summer. An unusually early winter-type storm September 8-19 damaged several mature crops. Harvest of tokay grapes for shipping was terminated in midseason and the tonnage of both canning and fresh market tomatoes was cut by the rain. Raisins and prunes suffered minor damage and the quality of nuts was adversely affected in some orchards. Bean, hay and seed losses were light.



The fall season featured above normal temperatures and almost a complete absence of rainfall. Hard freezing temperatures did not occur until December. Open weather permitted uninterrupted harvest and fall and preparation for 1960 crops was completed well ahead of normal schedules. The shortage of rainfall necessitated more irrigating than normal in the late fall and winter seasons.

#### Milk and Beef Production Continues to Expand

Expansion of beef and dairy production continued in 1959. Milk production increased 4 percent over the previous year to set a new record. By January 1, 1960, cattle population had climbed to 4,274,000 head, the largest number ever on hand in this State. The growth of cattle feeding continued and on November 1, there were 18,000 head being fattened in California feedlots, the largest number of record. The sale of cattle and calves in 1959 provided the most important single source of agricultural

income in the State and exceeded income from dairy production for the second successive year. Both marketings and prices were higher than in 1958 for cattle and for dairy products.

#### Poultry Production Remains High

Egg production climbed to a new record of 5.2 billion eggs in 1959, due to an increase in layers and a higher rate of lay per bird. However, egg prices in 1959 declined to the lowest level since 1940 and cash receipts from the sale of eggs dropped 20 percent below 1958. Broiler production increased about 7 percent over 1958 and the 169 million pounds produced was second only to the record year of 1956. Prices for chickens were lower in 1959 than in 1958. A record large number of chicks were hatched by the State's commercial hatcheries in 1959. Turkey production declined 6 percent from 1958 but the 12.8 million birds raised brought producers a slightly larger return than the 13.6 million birds produced the previous year.

TABLE 1  
Harvested Acreage of Principal Crops in California  
(Acres)

Year	Field Crops	Fruit and Nut Crops	Vegetable and Melon Crops	Total All Crops
1930-39 average	4,972,330	1,517,899	511,078	7,001,307
1940-49 average	5,850,180	1,482,403	584,037	7,916,620
1950	6,375,500	1,385,683	603,960	8,365,143
1951	6,427,400	1,356,122	660,690	8,444,212
1952	1,776,500	1,329,275	632,780	8,738,555
1953	6,868,500	1,310,239	615,760	8,794,499
1954	6,886,500	1,288,393	619,750	8,794,643
1955	6,660,700	1,244,998	666,900	8,572,598
1956	6,664,500	1,214,274	716,860	8,595,634
1957	6,637,710	1,187,056	697,530	8,522,296
1958	6,668,200	1,196,135	696,630	8,560,965
1959 preliminary	6,718,700	1,218,791	686,610	8,624,101

TABLE 2  
Production of Principal Crops in California  
(Tons)

Year	Field Crops	Fruit and Nut Crops	Vegetable and Melon Crops	Total All Crops
1930-39 average	8,646,300	5,317,940	2,022,800	15,987,040
1940-49 average	11,445,550	7,033,380	3,444,800	21,923,730
1950	15,100,300	6,511,900	4,068,000	25,680,200
1951	13,075,100	7,768,600	5,390,000	26,233,700
1952	14,017,200	7,039,300	5,185,000	26,241,500
1953	15,008,500	6,813,500	4,968,000	26,790,000
1954	16,827,900	6,381,500	4,916,000	28,125,400
1955	15,951,500	7,393,100	5,614,000	28,958,600
1956	16,209,800	7,186,700	6,571,500	29,968,000
1957	17,662,300	6,683,900	5,821,500	30,167,700
1958	16,874,800	6,352,900	6,318,200	29,545,900
1959 preliminary	18,276,100	7,658,600	5,987,000	31,921,700

**TABLE 3**  
**Value of Principal Crops in California**  
(Thousand Dollars)

Year	Field Crops	Fruit and Nut Crops	Vegetable and Melon Crops	Total All Crops
1930-39 average	133,142	161,840	79,562	374,544
1940-49 average	438,071	456,532	231,336	1,125,939
1950	685,390	509,572	287,277	1,482,239
1951	895,938	505,646	381,330	1,782,914
1952	946,211	449,899	377,495	1,773,605
1953	778,648	458,066	369,428	1,606,142
1954	800,525	473,786	367,799	1,642,110
1955	744,086	541,219	408,568	1,693,873
1956	833,074	579,908	430,152	1,843,134
1957	770,343	518,679	429,236	1,718,258
1958	808,622	551,083	420,635	1,780,340
1959 preliminary	910,250	572,427	442,458	1,925,135

**TABLE 4**  
**Cash Receipts from Farm Marketings of Livestock and Livestock Products in California**  
(Thousand dollars)

Year	Dairy products	Cattle and calves	Poultry and eggs	Other <sup>1</sup>	Total value
1930-39 average	75,908	46,992	46,831	24,869	194,600
1940-49 average	194,250	152,980	141,452	60,723	549,405
1950	237,042	305,755	221,253	83,575	847,625
1951	280,016	417,582	293,479	105,575	1,096,652
1952	320,723	353,973	276,089	89,204	1,039,989
1953	326,593	257,826	311,121	78,186	973,726
1954	300,870	274,914	250,928	78,825	905,537
1955	313,076	298,858	266,186	70,489	948,609
1956	331,471	326,567	263,575	71,368	992,981
1957	355,353	336,352	244,996	69,325	1,006,026
1958 preliminary	348,201	405,487	263,615	71,405	1,088,708

<sup>1</sup> Sheep and lambs, hogs, wool, honey, bees, beeswax, mohair, rabbits, horses, mules, and minks.

**TABLE 5**  
**January 1st Livestock Inventories in California**  
(Thousand head)

	1940-49 average	1950-57 average	1958	1959	1960
All cattle	2,748	3,428	3,738	4,044	4,274
Cattle on feed	166	371	398	504	663
Milk cows	827	883	945	945	983
Sheep and lambs					
Stock sheep	2,398	1,668	1,616	1,600	1,712
On feed	163	249	250	293	311
Hogs	819	538	442	416	417
Horses and mules	170	97	71	70	68
Farm chickens <sup>1</sup>	18,513	26,692	29,277	31,397	33,256
Turkeys over 4 months old	1,120	1,272	1,548	1,502	1,606

<sup>1</sup> Does not include commercial broilers.

### National Parity Ratio Down 5 Percent

The cost-price squeeze continued to plague the Nation's agriculture in 1959. This situation was reflected in a rising trend in the Index of Prices Paid by Farmers and a drop in the Index of Prices Received by Farmers. The Index of Prices Paid averages 5 points higher than in 1958 and reached an alltime high of 299 on April 15, 1959. The

Index of Prices Received averaged 10 points less than the previous year and had skidded to 228 by December 15, 1959. The Parity Ratio averaged 81 for the year but stood at 77 at the end of 1959, its lowest point since 1940.

California producers were adversely affected by the national trend in farm prices and costs. However, diversity of products,

th level of production, and a strong competitive position cushioned the impact on California agriculture.

TABLE 6  
Farm Price Indexes  
United States—1930-59

	Index of Prices Received by Farmers, percent	Index of Prices Paid by Farmers, percent	Farm Parity Ratio, percent
1930-39 Av. ....	97	125	78
1940-49 Av. ....	203	191	105
1950 .....	258	256	101
1951 .....	302	282	107
1952 .....	288	287	100
1953 .....	255	277	92
1954 .....	246	277	89
1955 .....	233	276	84
1956 .....	230	278	83
1957 .....	235	286	82
1958 <sup>1</sup> .....	250	293	85
1959 <sup>1</sup> .....	240	298	81

<sup>1</sup> Preliminary.

#### Net Farm Income Fails to Increase

While cash receipts from farming in California reached a record \$3 billion in 1959, farm production expenses again exceeded \$2 billion and it is expected that total net farm income will approximate \$990 million. This is about the same as in 1958 when the net was \$988.8 million.

California's average total net income from farming was \$7,572 per farm in 1959. This net income includes the balance of cash

receipts remaining after farm production expenses were paid, the value of products consumed on the farm, an allowance for rental value of farm buildings, and changes in the value of farm inventories. From the net income the operator was reimbursed for his labor and that provided by his family, and for the use of the capital he had invested in his operation. In 1959 the average value of farm real estate (land and buildings) was over \$88,000 per farm in California.

TABLE 7  
Cash Receipts, Production Expenses and  
Net Farm Income  
California—1950-59

Year	Cash receipts from farming (mil. dol.)	Farm production expenses (mil. dol.)	Total net farm income <sup>1</sup> (mil. dol.)
1930-39 Av. ....	—	—	—
1940-49 Av. ....	—	—	—
1950 .....	2,311.0	1,550.9	901.5
1951 .....	2,786.9	1,845.4	1,143.1
1952 .....	2,742.0	1,830.1	1,139.7
1953 .....	2,650.0	1,751.0	993.0
1954 .....	2,531.8	1,765.1	950.6
1955 .....	2,662.2	1,784.9	1,003.7
1956 .....	2,841.0	1,898.6	1,069.5
1957 .....	2,754.0	1,870.1	964.1
1958 <sup>2</sup> .....	2,852.8	2,035.5	988.8
1959 <sup>3</sup> .....	3,001.6	—	—

<sup>1</sup> Includes value of home consumption, rental value of farm dwellings and changes in value of inventories.

<sup>2</sup> Preliminary.

<sup>3</sup> Not available.

## Bureau of Fruit and Vegetable Standardization

W. POULSEN, Chief

R. WHIPPLE, Assistant Chief

The purpose of standardization inspection is to maintain and improve the quality and reputation of California agricultural products in the markets of California and the nation. The consumer is also protected by enforcement of quality standards through the removal of substandard produce from the markets, and prevention of deceptive packaging and labeling. Quality standards and packing requirements now apply to 33 types of fresh fruits, vegetables and walnuts, and to poultry meat, honey and eggs.

The Bureau of Fruit and Vegetable Standardization also conducts three self-supporting functions: canning tomato inspection, seed potato certification and wine grape inspection.

The purpose of canning tomato inspection is to insure that the tomatoes received are suitable for canning.

Seed potato certification provides California potato growers with disease free seed potatoes.

Wine grape inspection is to provide impartial determination and certification of defects in wine grapes which are harmful to California wine making, and to assure compliance with federal food and drug purity requirements.

The bureau's total workload in 1959 was 16 percent greater than the average of the five previous years.

#### **Fruit, Nut, Vegetable and Honey Standards**

Under the direction of the bureau, county agricultural commissioners and staffs enforce fruit and vegetable standardization laws and regulations. In 1959, 52 agricultural commissioners and their staffs worked 38,195 man days on fruit and vegetable standardization. Inspections were made of the equivalent of 342,713 carloads of fruits, nuts and vegetables, an increase of 32 percent over the previous year. These inspections resulted in 11,236 rejections.

Bureau representatives also supervised the inspection conducted by agricultural commissioners for marketing order advisory boards pertaining to freestone peaches, plums and cantaloupes.

At highway inspection stations, maintained by the bureau, the equivalent of 87,334 carloads of produce, was checked through or inspected. This constitutes a 4 percent increase over 1958. Also, loads of grapefruit, cantaloupes, peaches, lettuce and plums were checked at these stations for compliance with marketing orders. This work was done in co-operation with respective commodity advisory boards.

#### **Standardization Marketing Surveys**

Surveys were made pertaining to: (1) the maturity of three varieties of grapes intended for shipment to fresh markets, (2) packing methods of 12 varieties of freestone peaches and 10 varieties of nectarines, and (3) the maturity of 18 varieties of apples. These surveys are financed equally by the Research and Marketing Administration section of the United States Department of Agriculture, and the California Department of Agriculture.

#### **Egg and Poultry Meat Standardization**

There were 79,869 lots of eggs and 19,395 inspections of poultry meat made by agricultural commissioners and staffs, and by bureau inspectors. Rejections totaled 4,279.

#### **Seed Potato Certification**

Inspections of potato plants were made on 4,730 acres for initial determination of qualification as certified seed potatoes. Later in the season 4,525 acres were inspected, and at harvest time official certification tags were placed on seed potatoes harvested from 4,258 acres.

Seed potato test plots were maintained at Half Moon Bay and Oceanside. At the Half Moon Bay test plot, 333 samples were grown and tested in the spring. These samples were obtained from potato seed sources to be planted by growers and entered for certification. At the Oceanside test plot, in the winter, 435 samples from seed potatoes were grown and tested for eligibility as "Foundation Stock Seed Potatoes," the top purity classification.

#### **Canning Tomato Inspection**

The Agricultural Code requires that every load of canning tomatoes be inspected at time of delivery, and a certificate issued if the load meets the quality requirements. Generally speaking, good red coloring was better than in several previous years, and poor coloring was less apparent. The percent of total defects did not change significantly from previous seasons.

Inspections, conducted at 172 stations throughout the State, total 2,108,724 tons, equivalent to 130,892 loads.

#### **Wine Grape Inspection**

This was a new activity in 1959, based on the authority of Section 782.4 Agricultural Code, and prompted by a petition from the California wine industry. A voluntary inspection system was instigated under regulations of the California Department of Agriculture. Inspections were conducted at 13 California wineries where 7,360 loads were inspected. Official certificates were issued showing the percent decomposition in each load.

# Bureau of Markets

The Bureau of Markets is charged with the administration and enforcement of self-help marketing programs. These self-help programs are operated and enforced under the following laws:

1. The California Marketing Act of 1937
2. The Agricultural Producers Marketing Law
3. The California Agricultural Products Marketing Law of 1943
4. Chapter 4, Division 6 of the Agricultural Code pertaining to nonprofit co-operative associations
5. The California Beef Council Law
6. The California Poultry Promotion Council Law
7. The new California Fish and Seafood Advisory Board Law

The general purpose of these laws is to enable California agricultural industries that desire to do so to work together with the aid of the State to improve their marketing conditions. With some variation, the expressed purposes are:

(a) To enable agricultural producers of this State, with the aid of the State, more effectively to correlate the marketing of their agricultural commodities with market demands therefor.

(b) To establish orderly marketing of agricultural commodities.

(c) To provide for uniform grading and proper preparation of agricultural commodities for market.

(d) To provide methods and means for the maintenance of present markets or for the development of new or larger markets for agricultural commodities grown within this State or for the prevention, modification or elimination of trade barriers which obstruct the free flow of such agricultural commodities to market.

(e) To eliminate or reduce economic waste in the marketing of agricultural commodities, and

(f) To restore and maintain adequate purchasing power for the agricultural producers of this State.

Thus an opportunity is offered to the agricultural producers and handlers of this State to work together on problems which cannot be solved individually.

## INDUSTRY SELF-HELP MARKETING PROGRAMS

Industry self-help marketing programs are formulated by the agricultural industry concerned, and are administered by an industry advisory board, with the department giving general assistance and supervision in the administration of the program. Each industry provides the funds necessary to defray the expenses of operation of its program; they are not borne by general tax funds. The department makes collections and expenditures on behalf of the various programs and makes appropriate accounting.

A total of 33 industry self-help programs were in operation in 1959; 30 of which operated under the authority of the California Marketing Act of 1937; two under the authority of the Agricultural Producers Marketing Law; and one under the California Beef Council Law. These programs, together with indicated main authorizations, are listed as follows:

### *A. Programs operating under the authority of the California Marketing Act:*

<i>Commodity</i>	<i>Main authorization</i>
Early apples—Grade, size, volume, pack and container, and quantity regulations; advertising and sales promotion; research.	
Asparagus (fresh)—Grade and size regulations; quantity regulations; advertising and sales promotion; research.	
Asparagus (processing)—Quantity regulations; advertising and sales promotion; research.	
Bush berries—Advertising and sales promotion; research.	
Cantaloupes—Grade, size, pack and container regulations; surplus control; advertising and sales promotion; research.	
Dried figs and dried fig products—Diversion of sub-standard figs; advertising and sales promotion; research.	
Grapefruit—Grade and size regulations; advertising and sales promotion; research.	
Honey, extracted—Advertising and sales promotion; research.	
Dry-pack lettuce—Grade and size regulations; quantity regulations.	
Winter head lettuce—Grade and size regulations; quantity regulations; research.	
Summer head lettuce—Grade and size regulations; quantity regulations; unfair trade practices.	
Standard lima beans—Advertising and sales promotion; research.	
Olallie berries—Advertising and sales promotion; research.	



<i>Commodity</i>	<i>Main authorization</i>
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Canned olives—Quality and size regulations; market stabilization; surplus control; advertising and sales promotion; research.	
Cling peaches (canning and freezing)—Surplus control; quantity regulations; advertising and sales promotion; research.	
Fresh peaches—Grade, size, maturity, and pack regulations; advertising and sales promotion; research.	
Fresh Bartlett pears—Grade and size regulations.	
Bartlett pear promotion—Advertising and sales promotion; research.	
Canning fall and winter pears—Grade regulations.	
Fresh fall and winter pears—Grade and size regulations; volume regulations; advertising and sales promotion.	
Hardy pears, promotion—Advertising and sales promotion; research.	
Plums (fresh)—Grade, size, maturity, and pack regulations; advertising and sales promotion; research.	
Potatoes, Delta white—Grade, size, maturity regulations; advertising and sales promotion; research.	
Potatoes, long white—Grade, size, maturity regulations; advertising and sales promotion; research.	
Poultry and turkey improvement—Pullorum and fowl typhoid disease control.	
Dried prunes—Advertising and sales promotion; research.	
Raisins—Advertising and sales promotion; research.	
Strawberries—Advertising and sales promotion; research.	
Turkey promotion—Advertising and sales promotion.	
Wine—Advertising and sales promotion; research.	

### B. Programs operating under the authority of the Agricultural Producers Marketing Law.

<i>Commodity</i>	<i>Main authorization</i>
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Bartlett pears, canning—Grade and size regulations; advertising and sales promotion; research.	
Brussels sprouts—Quantity limitations for freezing only.	

### C. Promotion programs under specific acts of the Legislature.

<i>Commodity</i>	<i>Main authorization</i>
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California beef—Promotion of beef and beef products; research.	
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Summary facts relating to these 33 programs in operation are:

Number of producers affected (including beef producers, estimated at 40,000)	73,500
Number of handlers affected	3,842
Estimated producer value of products affected (including California beef, with an estimated live sales value of \$450,000,000)	\$1,007,252,000
Total assessments collected	\$8,378,000
<b>Expenditures:</b>	
Administration, inspection, and research	\$2,838,000
Promotion	6,012,000
Total	\$8,850,000 <sup>1</sup>

<sup>1</sup> Includes expenditures from carryover funds.

## NEW PROGRAMS

Two new programs were made effective during 1959, and two others were in the process of being assented to at the close of 1959. The two new programs are summer head lettuce centered chiefly in the Salinas and Santa Maria Valleys and the other winter head lettuce centered chiefly in the Imperial Valley.

The two programs in the process of being assented to at the close of 1959 are California avocados and California fish and seafood. The program for avocados provides for advertising, sales promotion and marketing research only. The fish and seafood program is under a new law passed by the Legislature in 1959 and provides for advertising and sales promotion only.

## AUDITING

The bureau makes administrative audits of the records of handlers of the commodities regulated by marketing programs to determine the status of collection of assessments. The bureau audits the records of all such handlers following the first year of operation of a marketing program. The extent of subsequent audits is determined from experience gained relative to the general accuracy of, and compliance with, assessment payments. Usually, audits are made each year of not less than 15 percent of the industry by number and volume. Investigative audits are made in all cases where there is reason to believe that underpayments may have occurred. The bureau also undertakes audits and reviews the activities conducted by the program advisory boards in handling administrative obligations.

## ENFORCEMENT

The enforcement section of the bureau devotes its time and attention to enforcing the provisions of marketing orders and programs, including volume, size and grade regulations, and the collection of delinquent assessments. The work involves checking complaints, handling noncompliance reports, supervising the disposition of commercial lots of the commodity under noncompliance hold orders, accomplishing collection of overdue assessments and preparing cases for referral to the Attorney General's Office when court action appears necessary, and assisting the office of the Attorney General in the litigation proceedings.

Supervision of inspection service performed by county agricultural commissioners for advisory boards was exercised by the

bureau of Fruit and Vegetable Standardization in the case of fresh peaches, fresh plums and cantaloupes. This supervision has proven very helpful in obtaining uniformity and general compliance with the regulations. Most encouraging progress is being made toward statewide uniformity of treatment of violations, of supervision of inspection procedures, and of appropriate followup action. As a followup procedure, letters of admonition have proved effective in reducing non-compliance, and centralized review has been helpful in keeping compliance cases co-ordinated.

#### **FOOD TRADE SURVEYS FOR MARKET EXPANSION**

The bureau in 1959 conducted market expansion surveys at the request of a number of industries endeavoring to expand their markets through self-help programs. The cost was paid from state funds matched with federal funds received from the U.S. Department of Agriculture under provisions of the Federal Research and Marketing Act.

The surveys included analyzing the market expansion problems, obtaining the information pertaining to them, and recommending specific steps for solving them. In turn, these steps included the applying of sound principles of marketing and promotion, the utilizing of studies and surveys by other agencies, and the obtaining of such additional information as is needed through fact-finding investigations.

The findings and recommendations of these surveys were furnished through printed reports and through consultations with advisory boards and their employees and promotional agencies.

#### **Strawberries**

A marketing survey conducted at the request of the California Strawberry Advisory Board, in progress at the first of the year, was completed. A printed report entitled "Improving the Marketing of Fresh and Frozen California Strawberries" was distributed at board expense to all members of the industry. Food trade journals carried a number of articles based on the report. Also, copies are being mailed by request to interested parties in the United States and in foreign countries.

The purpose of the survey was to discover any obstacles to the sale and consumption of fresh and frozen California strawberries and find a better way to surmount them.

#### **Turkeys**

On the request of the California Turkey Promotion Advisory Board, a survey is being conducted on the problem of how to improve the market for California turkeys. A survey of turkey marketing was published by the bureau in 1951, but in view of the great changes that have taken place a followup survey was thought to be needed.

#### **Canning Bartlett Pears**

The bureau has been assisting the canning Bartlett pear industry by familiarizing the industry's Marketing Order Program Committee with basic fundamentals of product promotion.

During 1958-59 the committee introduced a plan of reorganization for a three-state promotional program which would enable it to assume a more equitable share of the administrative responsibility. By this action the committee demonstrated a greater desire to participate in the program as well as greater confidence to do so. There is reason to believe the program will be strengthened by adoption of the committee's plan of reorganization.

#### **Improving the Effectiveness of Product Promotion Programs**

To help industry boards formulate and carry out effective commodity promotional programs, the bureau undertook the development of a manual entitled, "Development and Administration of Agricultural Product Promotion Programs." The manual is in the final stage of preparation and is expected to soon be ready for distribution.

#### **GENERAL MARKETING SERVICE**

Over the years the Bureau of Markets has served as a source of information and assistance to producers, processors, and distributors of California agricultural commodities in connection with general marketing problems. Requests for this service are frequently received from groups interested in the formulation of new co-operative marketing associations, or the development of new industry self-help marketing programs.

Also, numerous requests are received from individuals or groups seeking information or suggestions concerning general marketing problems, or desiring participation of bureau personnel in meetings of industry groups. Officials and industry groups in other states and in foreign countries frequently seek, by

correspondence or personal visit, to obtain information about California marketing programs and the organization and operation of marketing agencies in California.

The general marketing service function of the Bureau of Markets continues to expand, particularly with respect to those commodity groups requesting information with respect to self-help marketing programs. Ex-

penses of the bureau in connection with such assistance are paid from general fund sources to the point that the commodity group requests that a public hearing be held upon a marketing program. At the time of the request the commodity group is required to make a deposit to meet the costs of the department in connection with the hearing and the other procedural steps.

## Bureau of Market Enforcement

J. C. HARLAN, Chief

H. S. CANN, Assistant Chief

### PART I

The Produce Dealers Act and the Processors Law appear as Chapters 6 and 9, Division 6, Agricultural Code.

The Bureau of Market Enforcement has the duty of enforcing these laws under which handlers of farm products must be licensed and bonded in order to engage in the business of commission merchant, dealer, or processor.

Brokers, cash buyers, and agents also are required to obtain licenses but are not bonded.

The Produce Dealers Act requires persons who handle farm products on consignment, or who purchase farm products in fresh form for distribution through wholesale channels, to operate in a faithful and honest manner, and in accordance with the statutory provisions of the act.

The Processors Law contains similar requirements for persons who purchase or handle farm products for the purpose of manufacture or processing, and who sell the finished product in dried, canned, extracted, fermented, distilled, frozen, or other preserved form.

These statutes were enacted to protect persons engaged in the production of farm products. Commission merchants are required to render true and proper accounts of sale, and to make settlement thereon, to the consignor. Dealers and processors are required to make payment to producers in accordance with the terms of their contracts, and as provided by law.

The work of the bureau involves investigations of complaints filed by producers

against licensees, as well as a continuing supervision of agricultural and shipping centers to insure that persons engaged in handling farm products are properly licensed and bonded, and that general compliance with the statutes is maintained.

The bureau maintains offices at Fresno, Los Angeles, Sacramento and San Francisco. Producers may file their complaints by telephone, telegram, letter, or in person at any of these offices. Adjustments and settlements of controversies between producers and licensees generally are secured either by investigation or informal conference. Hearings are held on verified complaints, and upon the finding of a violation of the statutes licensees may be subjected to suspension or revocation of license, or to the imposition of probationary terms.

The bureau is supported and maintained by license fees, and no charge is made for any of the various services performed for producers.

During 1959, the bureau recovered for producers under the Produce Dealers Act, \$476,062.83, in which 706 producers participated. Under the Processors Law, recoveries amounted to \$81,941.49, in which 85 producers participated. The total amount involved under both statutes was \$558,004.32, in which 791 producers participated.

### PART II. DETAILS OF FUNCTIONAL ACTIVITIES

#### Produce Dealers Act

##### Summary of Complaints Handled—1959

On January 1, 1959, open complaints totaled 209. During the year, nine complaints

are reopened, 725 new complaints were received, and 757 complaints were closed, leaving 186 complaints open as of January 1, 1960.

Administrative hearings totaled 133: Disciplinary action resulted in 17 licenses revoked, 31 licenses suspended, 24 applications refused and denied, 1 license reinstated, and 1 licenses placed on probation.

Fifty-three criminal prosecutions of unlicensed dealers resulted in 9 jail sentences served, 11 fines assessed, and 16 suspended sentences and probation granted.

A total of \$476,062.83 was recovered for 65 producers during the year.

#### **Processors Law**

On January 1, 1959, open complaints totaled 66. During the year, 6 complaints were reopened, 84 new complaints were received, and 100 complaints were closed, leaving 56 complaints open as of January 1, 1960.

Administrative hearings totaled 11: Disciplinary action resulted in 3 licenses suspended, and 2 licenses placed on probation. A total of \$81,941.49 was recovered for producers during the year.

As a summary of all activities under both laws, 275 complaints were open on January

1, 1959. During the year, 15 complaints were reopened, 809 new complaints were received, 857 complaints were closed, leaving 242 complaints open as of January 1, 1960.

The sum of \$558,004.32 was recovered for 791 producers. Of this amount, \$83,208.15 was recovered as the result of 54 demands made on the bonds of dealers, commission merchants and processors.

The bureau issued 14,953 licenses: 12,609 under the Produce Dealers Act to dealers, brokers, commission merchants, cash buyers and agents, and 2,344 to processors and agents. On these licenses, administrative hearings were held in 144 cases, resulting in 17 revocations, 34 suspensions, 24 denials of applications, 1 reinstatement, and 25 licenses placed on probation.

A condensed summary of the activities of the bureau in the administration of the regulatory statutes assigned to it for a 33-year period, 1927 to 1959 inclusive, shows 25,353 complaints handled, 4,440 administrative hearings held, 794 licenses revoked, 642 licenses denied, and 1,227 criminal prosecutions.

As a net result of all activities, the bureau during the 33-year period recovered for growers a total of \$14,204,900.00.

## **Bureau of Market News**

**MAX K. JOHNSON, Chief**

**G. HILLIS, Assistant Chief**

The Bureau of Market News collects and disseminates timely, pertinent market information for use by agricultural and related industries as an aid to efficient and orderly marketing of farm products.

Information is made available through mimeographed reports, press and radio wire services, radio, TV and newspaper releases, personal and telephone contacts, and recorded telephone messages.

The bureau reports on dairy and poultry products; livestock, meats, and wool; hay, grains, feeds, and beans; fresh market fruits and vegetables; and miscellaneous commodities, including dried fruits, honey and wine.

Nuts, cotton, and most commodities for processing are among major items not re-

ported. The reports show price, market condition, statistical, and other information concerning the marketing of agricultural products.

Government Market News information has been available to the public since 1915. The first California office was opened on a seasonal basis in the Imperial Valley in that year. Market News nationally began the same year, with the issuance of a strawberry report from Hammond, Louisiana, on March 27, 1915.

From these first offices the Market News Service has grown in response to trade requests for market coverage of the many agricultural commodities until there are an administrative office, 19 field offices, and



nine terminal market offices in California, and about 200 Market News offices nationally.

Expansion of Market News in the early years was principally at terminal markets, reflecting the importance of terminals in the marketing structure at that time. Terminal market offices were opened in San Francisco and Los Angeles around the early 1920's to report trading in fruit and vegetable, livestock and meats, and dairy and poultry products. Over the years the size of farm operations has increased and the size of retail operations likewise has increased.

With the advent of supermarkets and nationwide chain stores, the centralized wholesale terminal markets have declined in importance since such retailers became able to handle sufficient volumes to buy directly from producing areas and to absorb the function of the independent local wholesaler in metropolitan areas. Decentralization of marketing was an important development that began in the late 1930's.

Country point trading has been important to the fruit and vegetable branch for many years, and expansion of service has been principally in that direction. Country point trading was not as important to the other commodity branches until recent years, since terminal marketing predominated.

#### **Changes and Modifications**

While overall Market News operations continued generally the same as in the past several years, the bureau made several changes or modifications during 1959 to reflect the continually increasing emphasis on country point trading, to meet or keep abreast of the changing marketing practices and conditions, to improve the value of the service, to increase efficiency, and to reduce costs.

Among these changes, a livestock reporting office was established at Red Bluff, the first California office north of San Francisco, to serve the stockmen of northeastern California. The main function of that office is to report auction sales and country point trading, chiefly in cattle and sheep. The terminal market livestock reporting office in South San Francisco was closed in January reflecting the decline in receipts. Trading at that point had been reported since 1922.

Reporting of shipping point prices and market conditions for Blythe district fall and spring lettuce was begun, now making Market News information available from all major western lettuce producing districts. Previously only cantaloupes were reported from this point.

A seasonal office was opened at Klamath Falls, Oregon, to serve the potato industry of the Klamath Basin which encompasses potato producing areas in both California and Oregon. This program is jointly financed by the State of California, the State of Oregon, and the U.S. Department of Agriculture.

Reporting of shipping point prices and market conditions was begun for oranges and lemons sold at major California producing areas. Previous Market News programs on citrus, which continued, were limited to reporting prices at terminal markets. Since the establishment of these price quotations in California, which measure the price level at the packing plant, other citrus producing states have initiated similar programs.

#### **Turkey Reports Expanded**

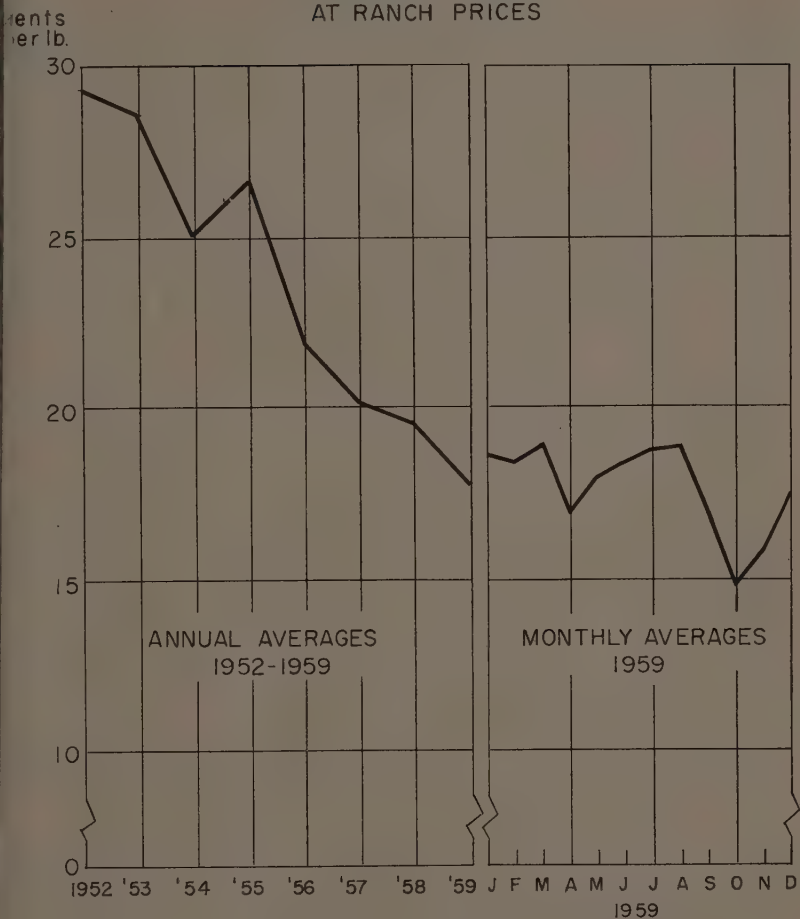
Additionally, several changes and expansions were made in existing market reporting programs. The reporting program for turkeys was expanded to include prices and market conditions for carlot and l.c.l. quantities of processed turkeys sold by central San Joaquin Valley processing plants. This new reporting of plant prices measures a significant level of trading on which information was not previously available. Also, reporting of daily ranch prices for central San Joaquin Valley live turkeys was expanded at trade request to include the quantity sold at each price, reflecting experience with volume-price reporting of fryers at ranch which was begun at Fresno and Los Angeles in 1958, and San Francisco in 1959. At the same time, reporting of delivered prices for live poultry at San Francisco was discontinued, reflecting the decline in terminal market trading.

During 1959 prices for many commodities trended downward but some trended upward. Market features of the 1959 season for groups of commodities along with brief comments and price charts depicting the past eight years for selected commodities follow.



# FRYERS

## SAN JOAQUIN VALLEY AT RANCH PRICES



FEDERAL STATE MARKET NEWS SERVICE 12-29-59

### FRYER PRICES LOWEST SINCE PRE-WORLD WAR II YEARS

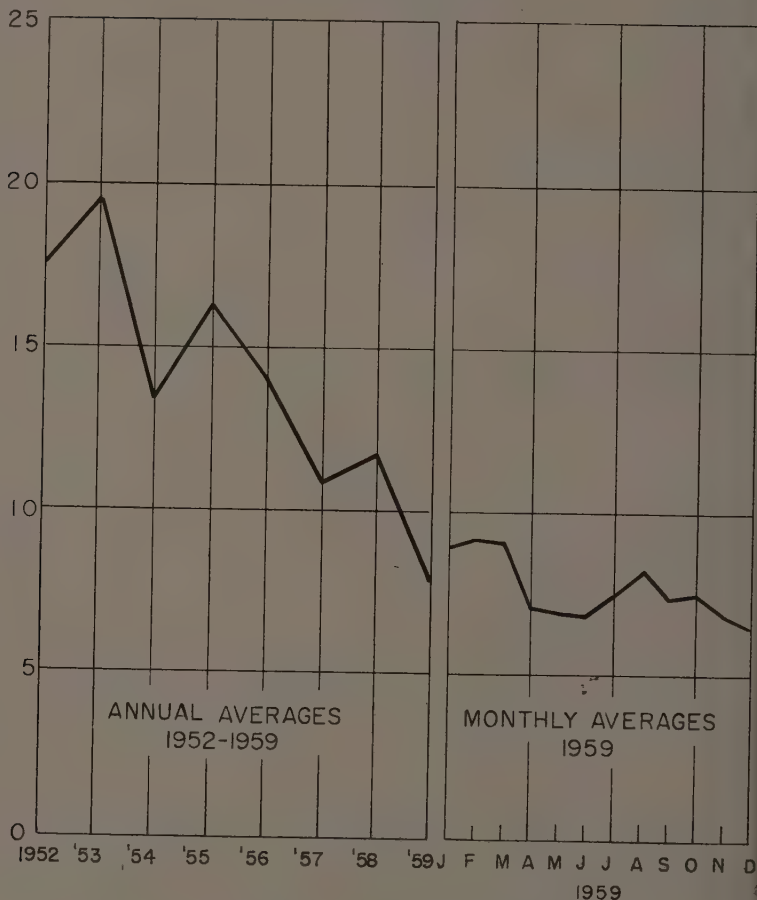
California fryer prices in 1959 continued the downward trend of other recent years and averaged the lowest since pre-World War II years. San Joaquin Valley fryer prices averaged around 17¾ cents in 1959, 40 percent below 1952 and the lowest since area prices were first reported in 1949. Monthly average prices in the San Joaquin Valley area in 1959 were the highest in August at just over 18¾ cents per pound and the lowest in October at just under 15 cents per pound. Daily prices fluctuated from a high of 20-22 cents in late January and again in February to a low of 14-16½ cents in mid-October. United States placements of chicks for commercial fryer production through October were estimated at 1 percent above 1958. California placements were 1 percent above the corresponding 10 months in 1958. As in other recent years the California fryer market was influenced principally by southeastern markets.

# LIGHT TYPE HENS

SAN JOAQUIN VALLEY

AT RANCH PRICES

cents  
per lb.



FEDERAL STATE MARKET NEWS SERVICE 12-29-59

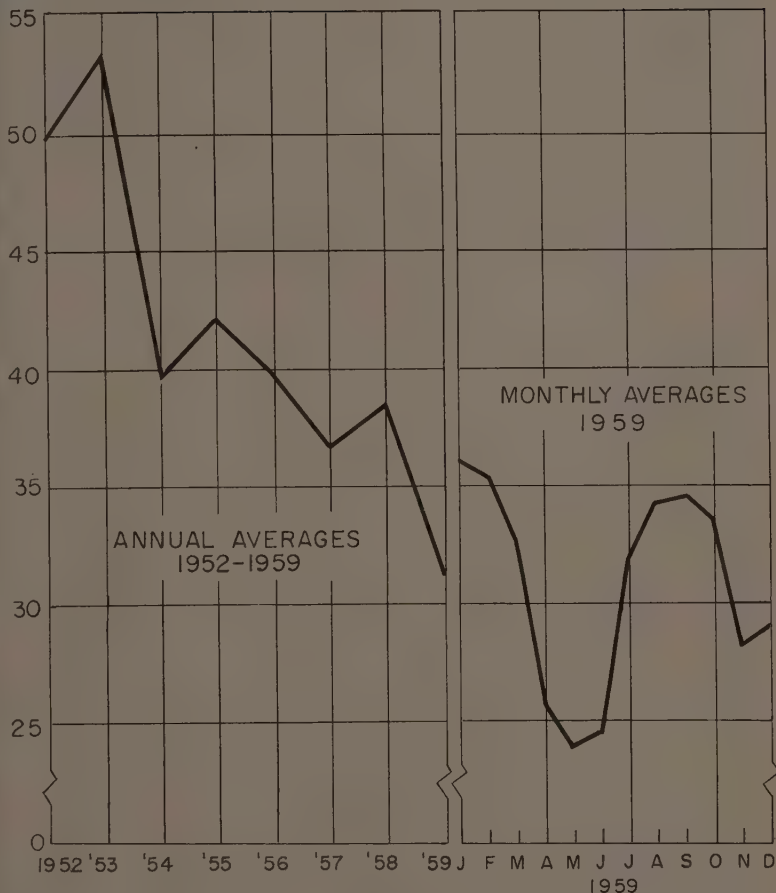
## LIGHT TYPE HEN PRICES DROP ONE-THIRD BELOW 1958

The price received for light type hens by California farmers during 1959 averaged the lowest in over 20 years. San Joaquin Valley growers received an average of less than 8 cents per pound in 1959, one-third lower than in 1958 and less than half the 1955 average. Monthly average prices for 1959 were the highest in February at 9 1/4 cents and the lowest in December at just under 6 1/2 cents per pound. Daily prices fluctuated between a high of 8-11 cents and a low of 6-7 cents per pound. Flock cullage was heavy during the spring and early summer and again in late fall, reflecting unusually low egg markets. Liberal supplies of fryers and other poultry throughout the year resulted in light demand for hens from retail outlets. Movement to canners and manufacturers was heavy.

# EGGS

## AT RANCH PRICES FRESNO AREA

cents  
per doz.



FEDERAL STATE MARKET NEWS SERVICE 12-29-59

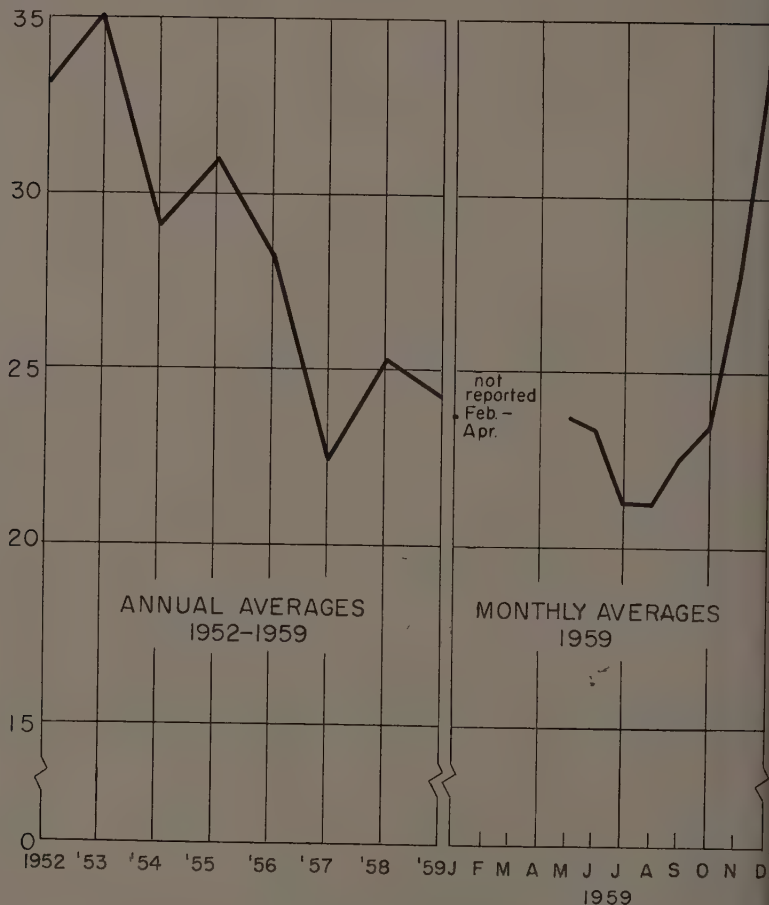
### EGG PRICE TRENDS CONTINUE DOWNWARD

California egg prices in 1959 averaged the lowest since the early 1940's. Egg prices have declined nearly every year since 1953, and in 1959 averaged nearly 50 percent below the record high of 1951. Prices at ranch in the Fresno area for Grade A large eggs in 1959 averaged just under 31 cents per dozen. Prices were the lowest of records starting in 1949 when the Federal-State Market News Service office was opened and appear to be the lowest since early in World War II. Monthly average prices for 1959 ranged from a high in January of 36 1/4 cents to a low in May of 24 cents. Daily prices were highest at 39-40 cents in January and for a short period in September, and lowest of 23-24 cents in May and June. The continued increase in production, both California and national, contributed to the low prices. Although the number of layers on United States farms averaged slightly below 1958 the increased rate of lay this year resulted in a percent increase in United States production. The rate of lay was near or above previous highs throughout 1959. During the spring months when price declines were the sharpest the rate of lay nationally was as much as 9 percent above 1958.

# YOUNG HEN TURKEYS

SAN JOAQUIN VALLEY  
AT RANCH PRICES

cents  
per lb.



FEDERAL STATE MARKET NEWS SERVICE 12-29-59

## YOUNG HEN TURKEY PRICES LOW

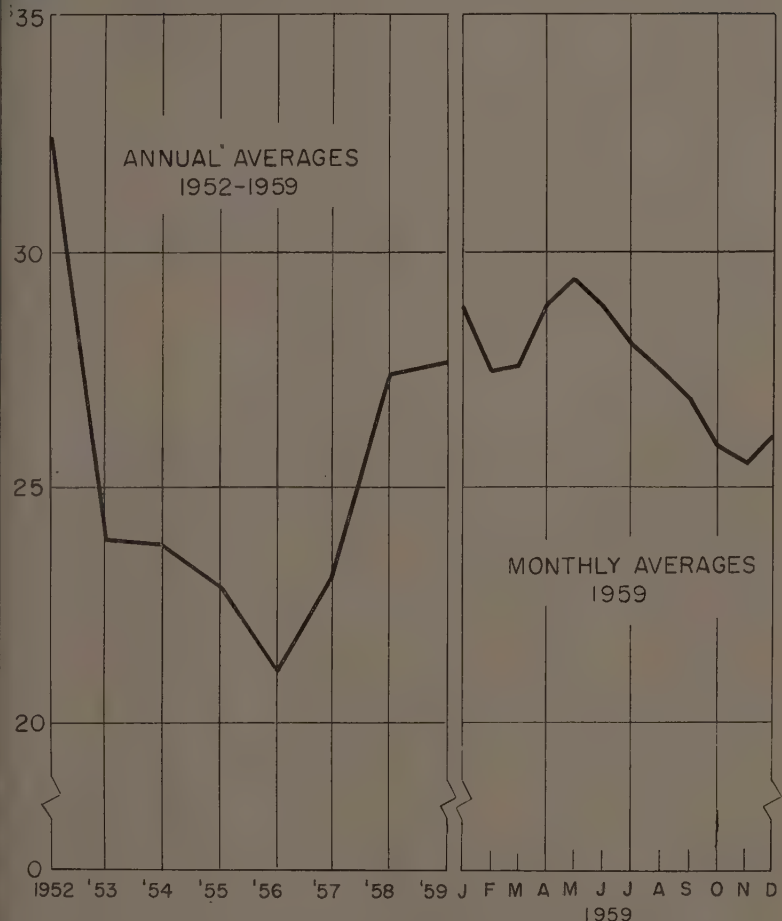
The simple average of prices to San Joaquin Valley turkey growers was 24½ cents per pound for young hens during 1959. With the exception of 1957, prices averaged the lowest since records were started in 1950 and appeared to be the lowest since World War II. Monthly average prices for 1959 were lowest in August at 21¼ cents and were highest in December at 34½ cents per pound. Prices advanced sharply in late November and December reflecting heavy movement into consumer channels for Thanksgiving; a faster than normal marketing of the crop and fewer turkeys remaining on farms after Thanksgiving; cold storage holdings below 1958 levels; and the purchase of around 21½ million pounds of dressed turkeys for the school lunch program.

Prices for young toms in 1959 followed the trend of young hens quite closely. However, young tom prices were above young hen prices more often than usual, and the simple average for the season was unusually high in relation to the average for young hens.

# SLAUGHTER STEERS

PRICES FOR CHOICE 900-1100 LB.  
SLAUGHTER STEERS AT LOS ANGELES

Price  
per cwt.



FEDERAL STATE MARKET NEWS SERVICE 12-29-59

## SLAUGHTER STEER PRICES AVERAGE HIGHEST SINCE 1952 DESPITE DECLINES

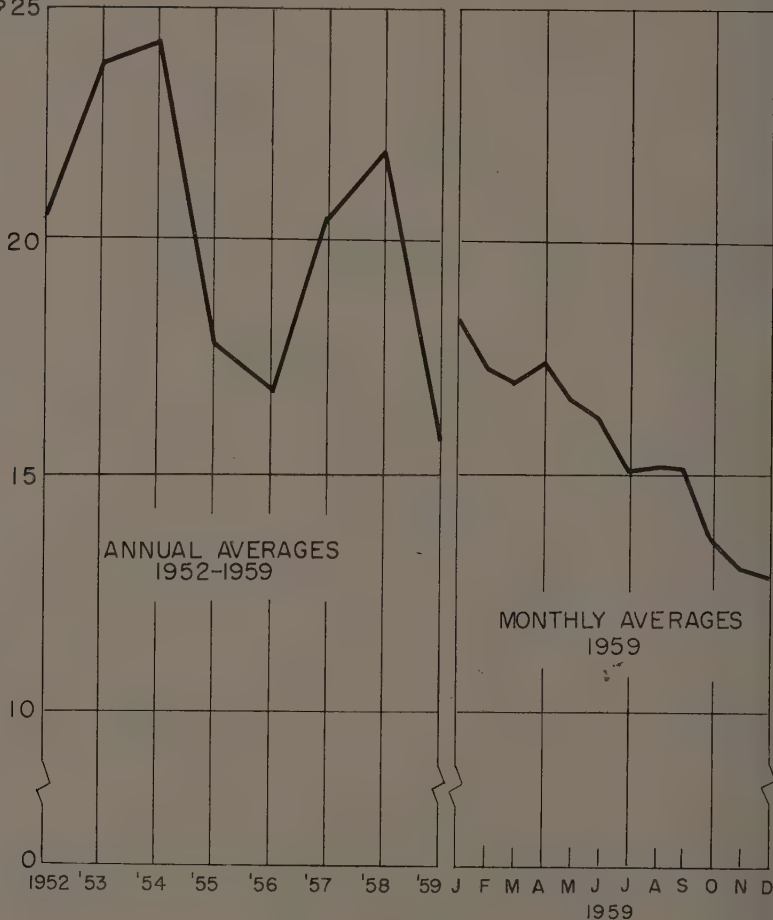
Prices of slaughter steers at the Los Angeles terminal market averaged slightly above 1958, halting the sharply advancing price trend of the previous two years. A noticeable price decline was recorded through the summer and fall months of 1959 but despite this decline the simple average price for the year was above 1958 and the highest since 1952. The price of slaughter steers followed a pattern similar to that of other livestock during the last half of the year though price declines were less severe. Records of the California Department of Agriculture and Livestock Reporting Service indicate that the nationwide slaughter of cattle for the first 10 months of 1959 was 4 percent below the corresponding months of 1958. In California, cattle slaughter during the same period was 3 percent above 1958.



# HOGS

PRICES FOR 220-240 LB.  
BARROWS AND GILTS AT LOS ANGELES

price  
per cwt.  
\$25



FEDERAL STATE MARKET NEWS SERVICE 12-29-59

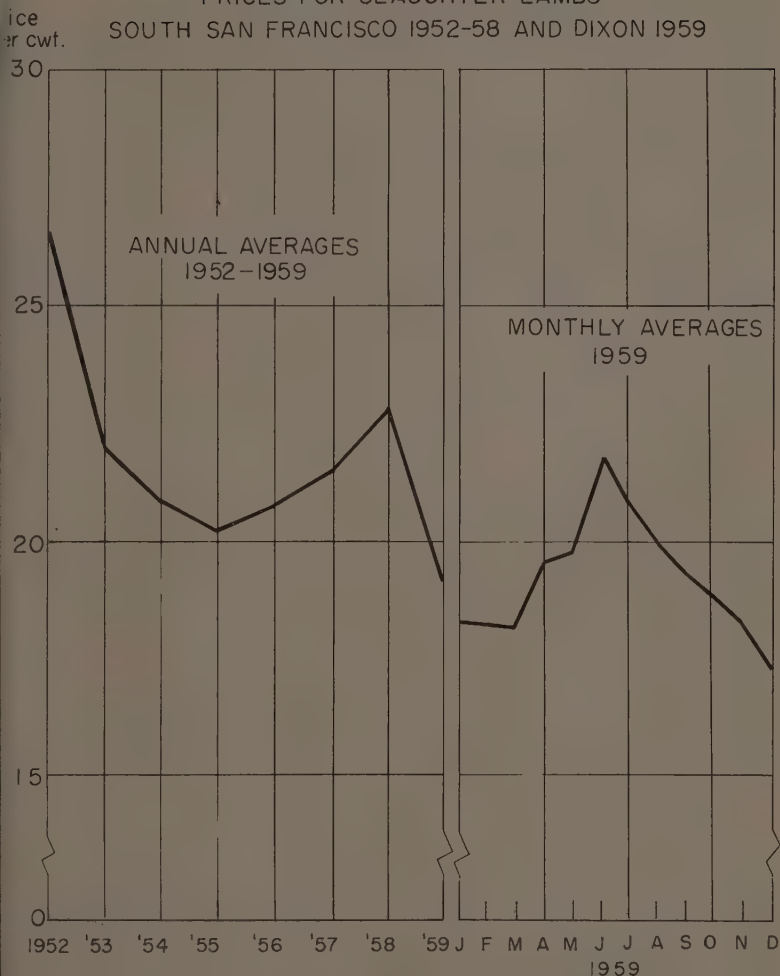
## HOG PRICES AT LOS ANGELES LOWEST SINCE 1945

Prices of hogs declined steadily at the Los Angeles terminal market in 1959 in continuation of a trend started in 1958. While prices did not fall as low as in the very sharp price break of the last half of 1955, the simple average for the year was the lowest since 1945. The simple average price of Choice No. 1-3 barrows and gilts at Los Angeles during 1959 was only \$15.64 per cwt., about \$6.25 or 30 percent below the simple average for 1958. Monthly average prices in 1959 were the highest in January at \$18.30 per cwt. They declined nearly every month and were the lowest in December at \$12.94 per cwt. This declining price trend at Los Angeles followed a national pattern as the market level for hogs in the midwestern corn belt area dominates the hog price structure throughout most of the nation. Contributing to the price decline was the increased supply of hogs. Records of the California Crop and Livestock Reporting Service indicate that nationwide slaughter of hogs for the first 10 months of 1959 was 12 percent above the same months of 1958.

# SLAUGHTER LAMBS

## PRICES FOR SLAUGHTER LAMBS

SOUTH SAN FRANCISCO 1952-58 AND DIXON 1959



FEDERAL STATE MARKET NEWS SERVICE 12-29-59

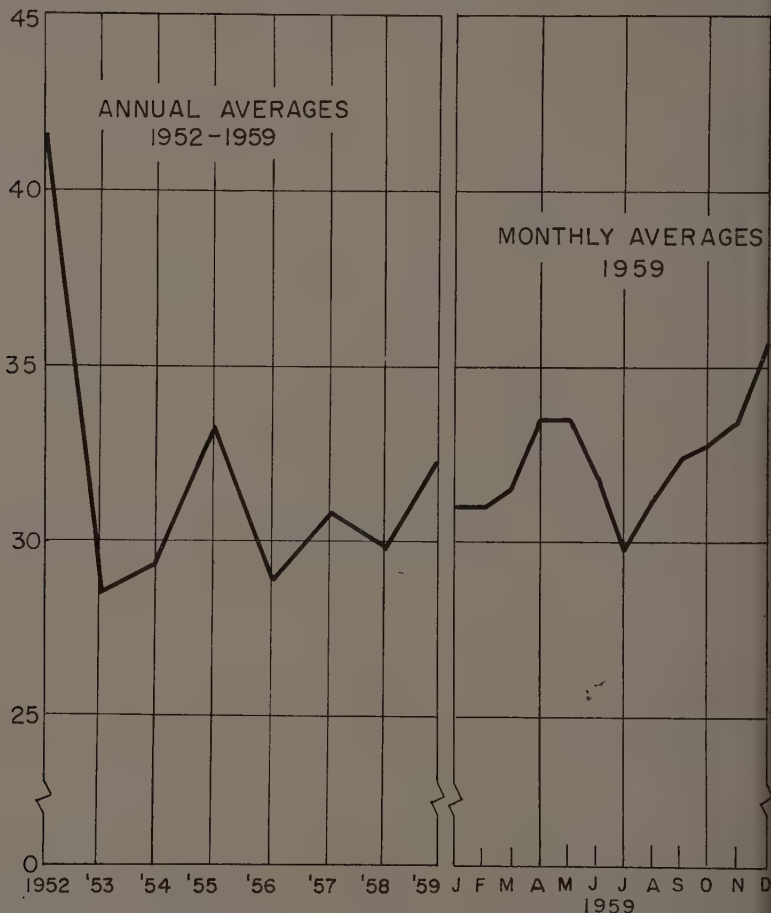
## SLAUGHTER LAMB PRICES LOWEST IN 13 YEARS

Slaughter lamb prices in 1959 were the lowest since 1946. The simple average price of Choice slaughter lambs at Dixon was \$19.20 per cwt. in 1959, or \$3.50 below South San Francisco prices for 1958, and \$14.42 percent below the South San Francisco record high in 1951. Monthly average prices at Dixon in 1959 were the highest in June at \$21.70 per cwt. Prices then declined and were lowest in December at around \$17.25. Records of the California Crop and Livestock Reporting Service indicate that the nationwide slaughter of sheep and lambs for the first 10 months of 1959 was 8 percent above the corresponding months of 1958, was 7 percent below the five-year 1953-57 average for these 10 months. Slaughter in California was 13 percent above the corresponding 10 months of 1958 and 4 percent above the five-year 1953-57 average for these months.

# ALFALFA HAY

PRICES FOR U. S. NO. 2 LEAFY, BALED  
AT LOS ANGELES

dollars  
per ton



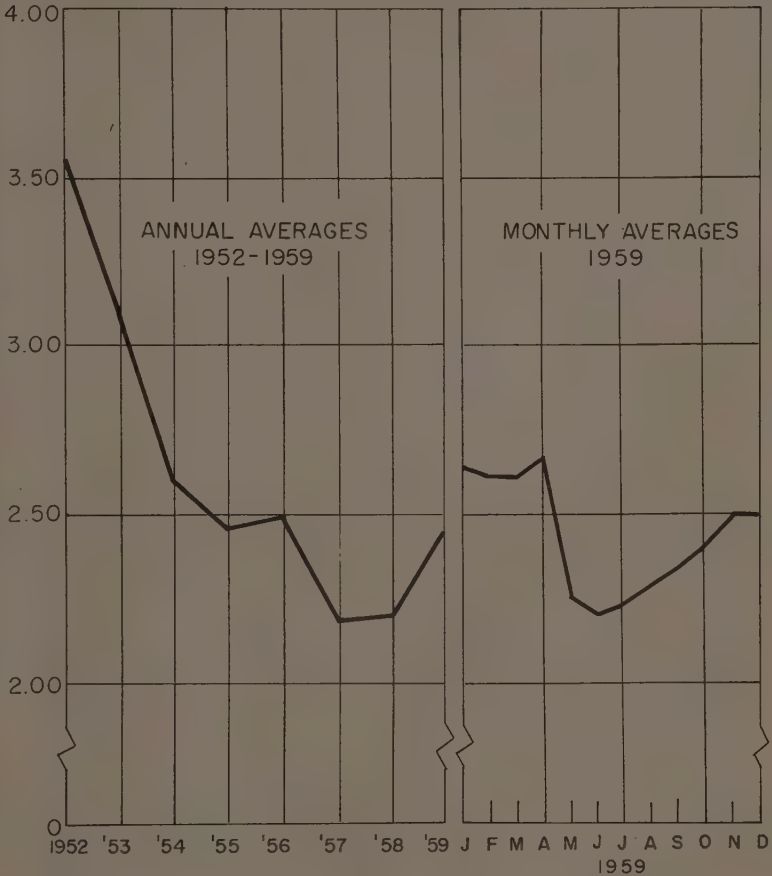
## ALFALFA HAY PRICES HIGHEST SINCE 1955

California alfalfa hay prices in 1959 averaged the highest since 1955. The high prices reflected increased demand and usage of hay due to the prolonged dry weather and the record large livestock population in the State. Prices at Los Angeles for U.S. No. 2 Leafy averaged \$32.32 per ton in 1959, \$2.48 above 1958 and only 99 cents below the 1955 average of \$33.31 per ton. Monthly average prices in 1959 were lowest in July at \$29.75 per ton and highest in December at \$35.75 per ton. Weekly prices ranged from a low of \$29-\$30 in July to a high of \$36-\$37 in December. Production of alfalfa hay in California was record high at 5,611,000 tons while total hay production was 2 percent below 1958 at 6,756,000 tons according to California Crop and Livestock Reporting Service estimates. Despite the large alfalfa production, stocks of hay on California farms as of December 31, 1959, were estimated at 1,149,000 tons, down 36 percent from the 1,796,000 tons on hand a year earlier, and were the lowest for December 31 since 1943.

## BARLEY

PRICES FOR NO. 2 WESTERN, 45 LBS. PER BUSHEL  
BULK BASIS, AT SAN FRANCISCO

Dollars  
per 100



### BARLEY PRICES NEARLY ONE-THIRD BELOW 1952

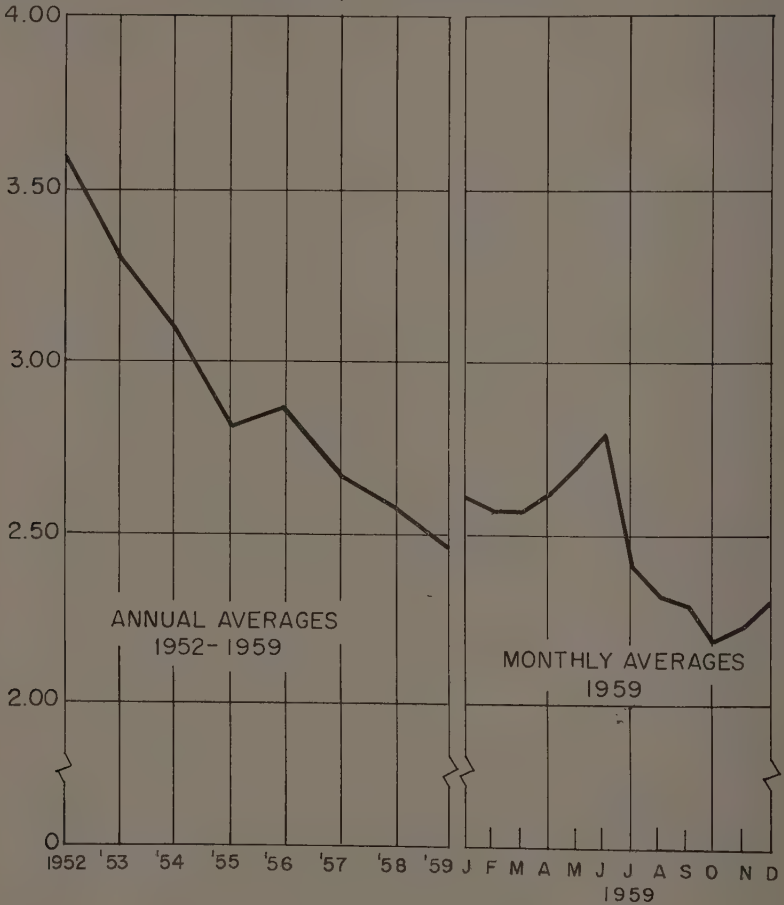
Prices for No. 2 Western barley testing 45 pounds per bushel averaged \$2.44 per 100 at San Francisco in 1959, the highest since 1956. Despite the slight advance, prices were nearly one-third below the high 1952 average. Monthly average prices were highest in April at \$2.66 per 100, and lowest in June at \$2.20 per 100, bulk basis.

California was the second largest producer of barley in 1959, with North Dakota first, Montana third, and Washington fourth. The 1,757,000 acres planted in California yielded 39 bushels per acre for a total production of 68,523,000 bushels. California production was 2 percent above 1958 but 15 percent below the record 1957 production. Nationally, production totaled 420,191,000 bushels, 12 percent below the 1958 record crop.

# MILO

## PRICES FOR NO. 2 YELLOW BULK BASIS, AT SAN FRANCISCO

dollars  
per 100



### MILO PRICES LOWEST SINCE 1942

Prices for No. 2 Yellow milo at San Francisco during 1959 averaged the lowest since 1942. Prices have trended lower virtually every year since 1952. Prices in 1959 averaged \$2.46 per 100, down nearly one-third from the 1952 record high. Monthly average prices were the highest in June at \$2.78 per 100 and lowest in October at \$2.19 per 100. Utilization of milo for feed was high during 1959, reflecting its relatively low price compared with other available feed grains.

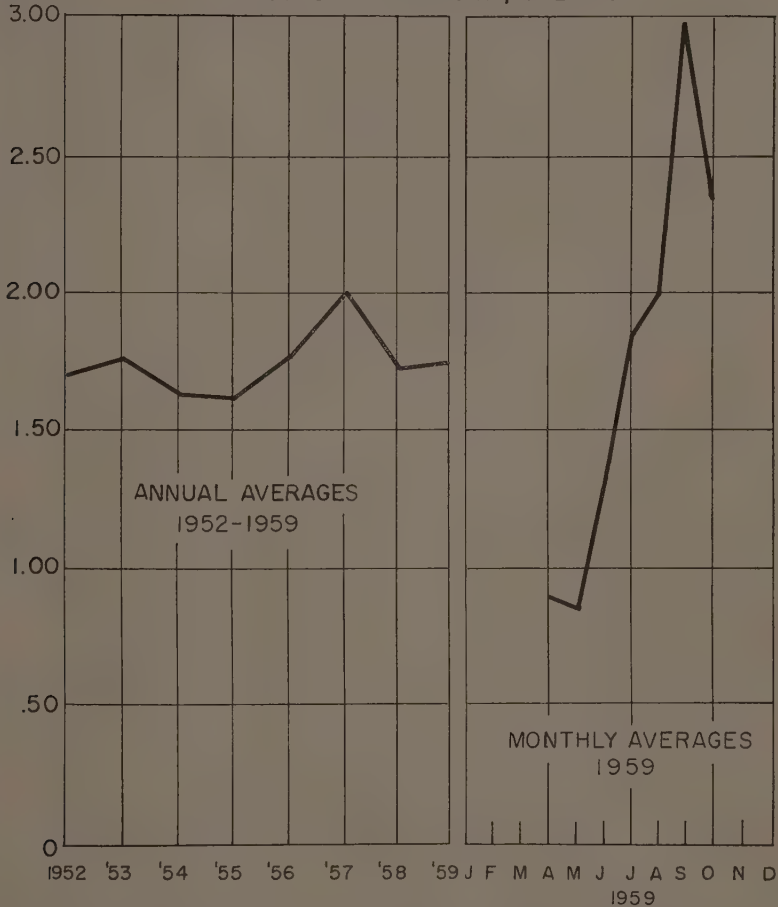
California plantings and yields of grain sorghums in 1959 were at record high levels. The 290,000 acres planted in California in 1959 yielded 63 bushels per acre for a record 18,270,000-bushel production, 9 percent above 1958. Nationally, production totaled 579,178,000 bushels, down 5 percent from 1958.



# ICEBERG TYPE LETTUCE

dollars  
per carton

PRICES FOR CARTONS OF 24 HEADS  
F.O.B. SHIPPING POINT, SALINAS



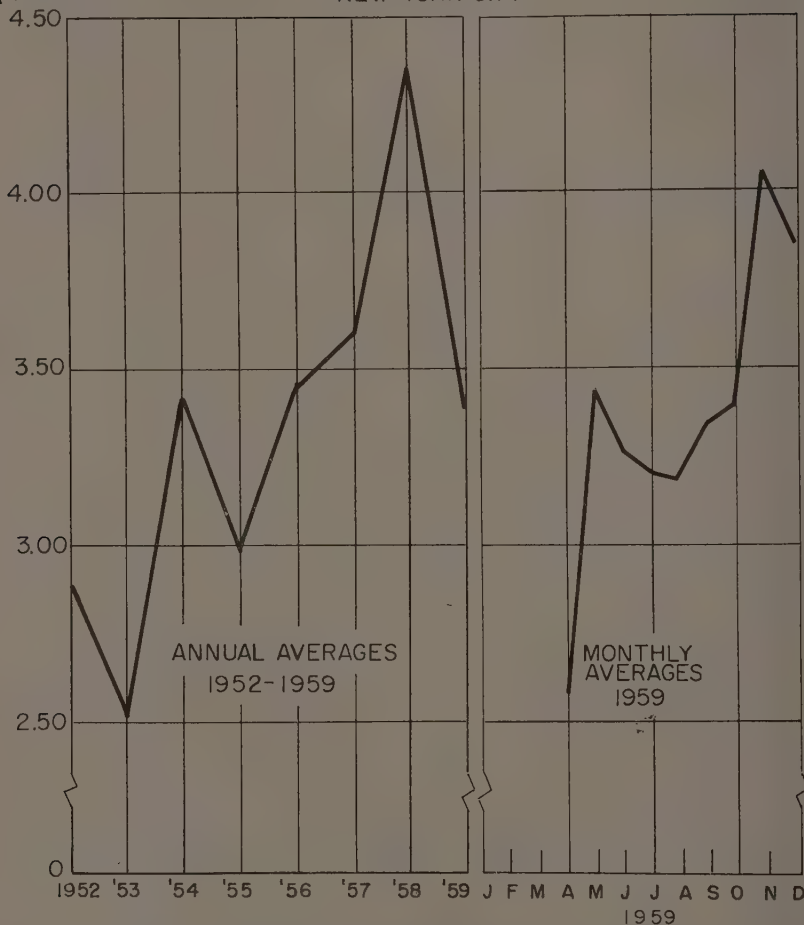
## SALINAS LETTUCE PRICES AVERAGE NEAR 1958 LEVELS DESPITE EXTREMES

Despite prolonged low prices during the spring season and record high prices during the fall season, the simple average of Salinas lettuce prices for the year was about the same as in 1958. Simple average prices for cartons of 24 heads was \$1.72 compared with \$1.74 in 1958 and \$2 in 1957. During late May prices dipped to 65-85 cents per carton, one of the lowest levels since 1942. Prices for that month averaged 86 cents. The low prices reflected continued sharp competition from Arizona, earlier than usual arrivals of homegrown offerings, slow movement in terminals, and variable quality. Starting in June prices advanced steadily through mid-September and reached a record high of \$3.75-\$4.50 on 24's. The average for the month of September was \$2.98. The record high prices reflected light loadings locally, decreased outside competition, and scarce supplies of all green vegetables from homegrown sections. Shipments from the Salinas-Watsonville district totaled 21,070 cars by rail and 9,823 carlot equivalents by truck in 1959 compared with 20,529 and 8,410 respectively in 1958.

# VALENCIA ORANGES

PRICES AT AUCTION  
NEW YORK CITY

dollars  
per carton



## VALENCIA ORANGE PRICES AT NEW YORK AUCTION BELOW PAST THREE YEARS

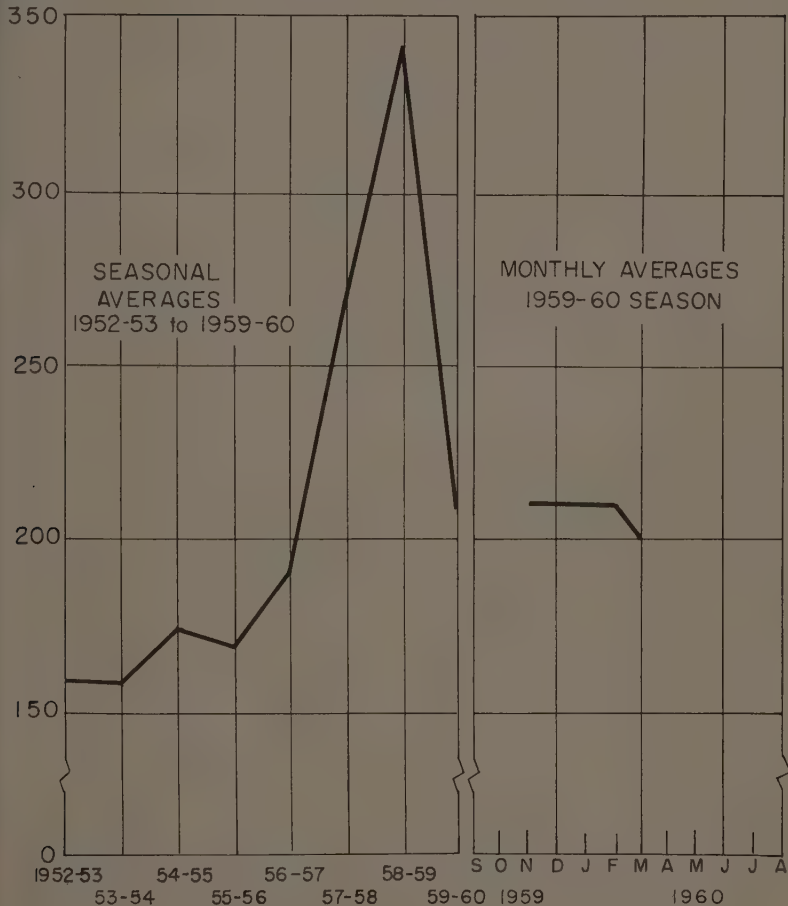
Prices for California Valencia oranges at the New York auction in 1959 averaged \$3.38 per carton, sharply below the 1958 average of \$4.37, but were slightly above the five-year 1953-57 average of \$3.20. Prices averaged the lowest in August at \$3.19 per carton and highest in November at \$4.05 per carton. Shipments of California Valencias to the New York auction in 1959 began in April, were heaviest in October, and ended in December. The New York auction handled over two million packages or 40 percent of the nearly 5.5 million packages of California Valencia oranges shipped to the nine eastern auctions in 1959. The Chicago auction was the second largest but handled less than three-quarters of a million packages or 13 percent of the total California sales at eastern auctions. Of the 1959 California Valencia harvest, shipments for fresh use comprised 53 percent of the crop, shipments for processing 37 percent, and export 10 percent. The California Crop and Livestock Reporting Service estimates the California Valencia harvest at 23.3 million boxes, 66 percent above the 14.1 million boxes in 1958 and nearly equal the 10-year average of 23.7 million boxes.

# THOMPSON SEEDLESS RAISINS

PRICES TO GROWERS, "FREE TONNAGE" BASIS

DELIVERED, JOAQUIN VALLEY

dollars  
per ton



## THOMPSON SEEDLESS RAISIN PRICES SHARPLY BELOW 1958

While prices paid growers for natural Thompson Seedless raisins in 1959 averaged sharply below the record high prices of 1958, they were above the five-year 1953-57 average. Prices during the 1959-60 season held steady through January 1960 at \$210 per ton, "free tonnage" basis, then dropped in February to \$200 per ton. To balance supplies with anticipated demands, the "free tonnage" portion of the 1959 Thompson Seedless raisin crop was 68 percent as established under the quantity control provisions of the Federal Marketing Agreement and Order. The "free tonnage" portion in the previous seven years varied from 55 percent to 100 percent. Preliminary estimates of the California Crop and Livestock Reporting Service indicate Thompson Seedless raisin production was 220,000 tons in 1959 compared with 146,000 tons in 1958 and 171,580 tons for the five-year 1953-57 average. In recent years most of the tonnage has traded by the end of the calendar year. In 1959 only 10,000-12,000 tons of all raisins remained in grower hands by early December.

### **Poultry and Livestock Prices Trend Downward**

Producer price levels for major California poultry items in 1959 were mostly lower than in other recent years, in continuation of downward trends. Price levels for eggs, light hens, and fryers were the lowest since the early or mid 1940's, and averaged only around half the post World War II peaks. Price levels for turkeys also averaged lower than in most years since the mid 1940's but showed a sharp upturn late in 1959 as a result of good demand and rapid movement of this year's large turkey crop. Heavy supplies, both nationally and in California, appeared the main factors in influencing the low prices of 1959.

Livestock prices during 1959 mostly were lower than in 1958. While the average of daily price quotations for steers at Los Angeles was the highest since 1952, the increase over 1958 was slight, and a downward price trend prevailed much of the year. Hog prices dipped to the lowest annual average since 1945, and were 30 percent below 1958. Slaughter lamb prices in the Sacramento Valley for 1959 averaged the lowest in over a decade. Livestock slaughter nationally was above 1958, except for slaughter steers which were slightly below a year ago. The number of head of livestock slaughtered in California was above 1958 on all classes of meat animals.

Hay and grain prices were mixed in 1959, reflecting varying supply and demand conditions for the individual commodities. Hay prices averaged the highest since 1955, oats the highest since 1956, dry beans the highest

since 1954, and rice prices averaged slightly above 1958 but otherwise were the lowest since 1949. Barley and corn prices averaged slightly below 1958 while wheat prices averaged the lowest since 1945 and milo the lowest since 1942. Total hay production was below 1958 despite alfalfa production being record high. Total grain production was above all previous years except 1957. Dry bean production, except for 1957, was the lowest since 1946.

### **Fruit Prices Lower, Vegetable Prices Mixed**

Most fruit and nut prices averaged below 1959 while vegetable prices were mixed. Olives, figs, and walnuts were among the few fruit and nut commodities that averaged above 1958 while almonds, raisins, oranges, and grapefruit led the commodities that averaged below 1958. Potatoes, early summer watermelons, summer and early fall lettuce, spring onions, and mid-summer cantaloupes averaged well above 1958 while celery, spring cantaloupes, early spring cabbage, cauliflower, and lettuce were considerably below 1958. Deciduous tree fruit production was the second highest of record, with Bartlett pear and nectarine production record high. Tree nut production was the highest of record because the almond crop was almost double average. Citrus production was sharply above 1958 and the highest since the 1952-53 crop. Vegetable production was 5 percent below 1958 but otherwise was the largest since 1956, with the decline principally due to the smaller acreage of tomatoes for processing.

# Bureau of Milk Stabilization

D. A. WEINLAND, *Chief*

C. C. SCHAFER, *Assistant Chief*

The Bureau of Milk Stabilization administers and enforces the provisions of Chapter 14 of Division 4 and Chapters 15, 16 and 17 of Division 6 of the Agricultural Code of California. Together, these sections constitute the milk stabilization and marketing program.

Chapter 17, commonly known as the Milk Control Law, provides for the establishment of minimum producer prices and minimum wholesale and minimum retail prices for fluid milk. It also provides for the licensing and bonding of distributors and the organization and financing of sales stimulation programs by marketing areas.

Chapter 16, commonly known as the Ice Cream Law, regulates the business activities of dairy products distributors. This statute defines and prohibits certain unfair business practices, and provides for the establishment of rules and regulations. It further requires the establishment of minimum rental rates for refrigeration equipment for frozen products supplied by a distributor to a customer.

Chapter 15, known as the Producer Exchange Act, provides for the licensing and regulation of dairy produce exchanges.

Chapter 14, known as the California Dairy Industry Advisory Board Act, enables the dairy industry to develop, maintain, and expand its markets through sales stimulation, research, and educational programs. This program is financed entirely by the State's dairy industry.

## Milk Production Increases

Between 1958 and 1959, the commercial production of all milk in California increased 4.9 percent.

Milk received at plants as market milk increased 7.8 percent and milk received at plants as manufacturing milk declined 6.4 percent.

Class 1 usage of market milk rose 2.8 percent, and that which was in excess of Class 1 requirements increased 26.8 percent.

All milk available for manufacture in California during 1959 was 8.5 percent greater than it was during 1958.

In 1958, market milk not required for Class 1 purposes accounted for 44.9 percent of the milk available for manufacture; in 1959 the total represented 52.5 percent.

Commercial production, Class 1 usage, and "other than Class 1" usage of market milk in California from 1950 to 1959 is shown in Chart A.

Total sales of fluid milk in California during 1959 was about 496 million gallons, an increase of 2.2 percent over the comparable figure for 1958. (Table 1.) However, since the estimated population of California rose 3.6 percent between 1958 and 1959, the per capita sales of fluid milk in the State declined. In 1958, they were equivalent to 131.6 quarts per person in the population; in 1959 per capita sales were 129.9 quarts.

Between 1958 and 1959, sales of fluid skim milk in California increased 13.9 percent. (Table 2.) Sales of flavored milk drink rose 6.2 percent; sales of half and half, less than 0.1 percent; and sales of fluid cream, 6.2 percent.

The favorable showing of fluid cream resulted from a 14.3 percent increase in the sales of sour fluid cream which more than offset a 5.7 percent decline in the sales of other fluid cream.

A comparison of the Class 1 market milk prices and manufacturing milk prices with the cost of a basic dairy ration is illustrated for a 10-year period, 1950-1959, in Graph A. The data was prepared on a 12-month average moving basis to de-emphasize the seasonal variations that tend to occur both in milk prices and feed costs.

## Public Hearings

During 1959, the bureau held 57 public hearings, 23 for the purpose of considering proposed amendments to minimum wholesale and minimum retail prices for fluid milk, 8 for the purpose of considering proposed wholesale discounts on sales of fluid milk to agencies of the federal, state or local government, 13 for the purpose of considering proposed amendments to the minimum prices that distributors are required to pay producers for fluid milk, 10



TABLE 1

**Estimated Sales Per Capita of Fluid Milk in California, 1957-1959**

	<i>Estimated population, July 1 (thousands)</i>	<i>Total sales of fluid milk</i>		<i>Sales per capita</i>
		<i>Thousand gallons</i>	<i>Thousand quarts</i>	<i>(quarts)</i>
1957 .....	14,190	477,663	1,910,652	134.6
1958 .....	14,752	485,273	1,941,092	131.6
1959 .....	15,280	496,083	1,984,332	129.9

TABLE 2

**Sales of Class 1 Fluid Market Milk Products, Other Than Fluid Milk, in California, 1957-1959**

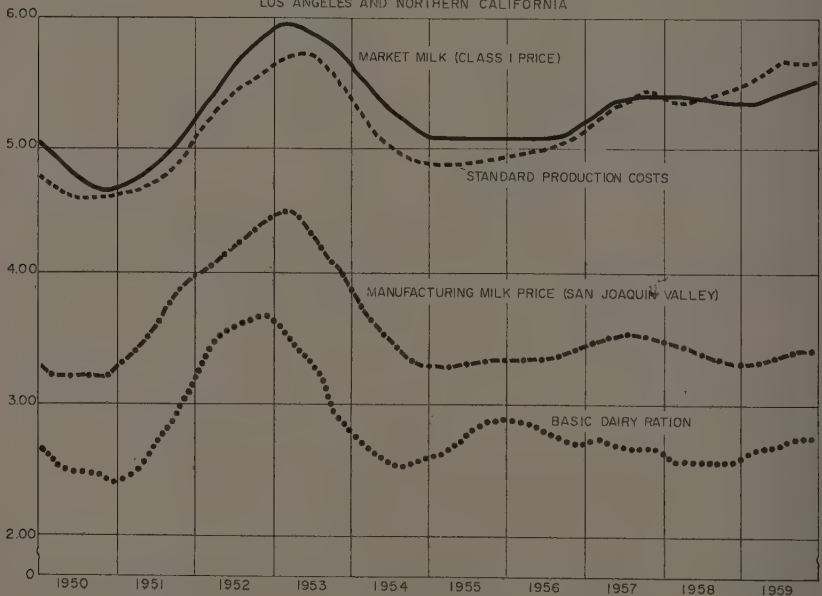
(Thousand gallons)

	<i>Fluid skim milk</i>	<i>Flavored milk drink</i>	<i>Half-and-half</i>	<i>Fluid cream</i>	
				<i>Sour</i>	<i>Other</i>
1957 .....	23,313	8,302	16,330	1,344	2,115
1958 .....	25,115	8,045	15,677	1,549	1,971
1959 .....	28,595	8,545	15,681	1,846	1,892

**COMPARISON OF MILK PRICES WITH PRODUCTION COSTS AND FEED COSTS**

1950-1959 (PER HUNDREDWEIGHT 3.8% MILK FAT)

LOS ANGELES AND NORTHERN CALIFORNIA



for the purpose of consolidating marketing areas, and three for the purpose of considering proposed sales stimulation and consumer education programs.

As a result of these hearings, minimum milk prices were increased at both the producer and consumer levels, discounts were provided for sales of milk to governmental agencies, and the number of marketing areas in the State was reduced from 33 to 28 areas.

The increases in prices were due to increases in the cost of labor, feed and supplies used in the production, processing and distribution of dairy products. However, increased efficiency in production and processing and increased sales have served to offset some increases in cost.

Consumers purchasing milk in California remain in a favorable position when compared to the United States as a whole. Table B shows a comparison of retail milk prices between California cities and cities throughout the United States.

TABLE 3

**Average Retail Prices of Fluid Milk Sold at Grocery Stores and Delivered to Homes**

20 Cities, United States, May and October, 1959

	(Cents per quart)	
	Grocery stores	Homes delivered
Philadelphia, Pa.	28.00	28.00
New York, N.Y.-N.E. N.J.	27.20	30.90
Atlanta, Ga.	27.10	26.30
Pittsburgh, Pa.	26.90	27.50
Scranton, Pa.	26.70	27.50
Baltimore, Md.	26.30	27.00
Washington, D.C.	25.60	27.60
Houston, Texas	23.80	26.50
Boston, Mass.	23.50	27.40
SAN FRANCISCO, CALIF.	23.50	25.20
Seattle, Wash.	23.30	24.00
Portland, Ore.	23.10	24.80
Cincinnati, Ohio	23.10	24.20
Chicago, Ill.	22.50	26.60
LOS ANGELES, CALIF.	22.30	24.50
Detroit, Mich.	21.70	—
St. Louis, Mo.	20.80	23.20
Kansas City, Mo.	20.60	22.50
Cleveland, Ohio	20.40	23.40
Minneapolis-St. Paul, Minn.	17.90	18.80
20-city average	23.70	25.60
United States, 46-city average	24.10	25.30

Source of data:

United States Department of Labor, Bureau of Labor Statistics, Retail Food Prices by Cities.

As of December 31, 1959, 1,781 fluid milk distributors were licensed to do business as distributors in the State of California. Of these, 352 were bonded distributors purchasing fluid milk from producers. Thirty-

six purchased processed fluid milk from producers, 64 were cash affidavit distributors purchasing fluid milk from producers and paying cash upon receipt of the milk, 188 were producer-distributors, and 1,177 were subdistributors purchasing their supplies from other distributors. Of these subdistributors, 33 processed the fluid milk purchased from other distributors.

**1,167 Producers Benefit by Recoveries**

In 1959, the bureau conducted 595 producer payment audits of the payments by distributors to the producers of fluid milk. The verifications covered 32,381 producer months and 3,525 distributor months and resulted in the recovery of \$153,167.26 for 1,167 producers. Recoveries from the surety companies totaled \$18,771.29 in favor of four producer-creditors.

During the year 1959, 52 distribution cost studies were completed for fluid milk; 78 studies were adjusted to reflect labor increases, volume variations or actual expenses as reflected by report of expenses submitted for each month by representative milk processing companies. One distributor cost study was made of the processing and distribution of concentrated milk.

Retail store surveys for the entire State were prepared for the year 1958, reflecting the relationship of expenses to sales. This involved the obtaining and summarizing the financial records of 580 stores.

During 1959, there was an average number of 582 dairies co-operating on the Standard Milk Production Cost Survey. Of this number, 89 percent were market milk producers, and 11 percent were manufacturing milk producers. A total of 2,826 individual surveys were completed from the records of the 582 dairies for the year.

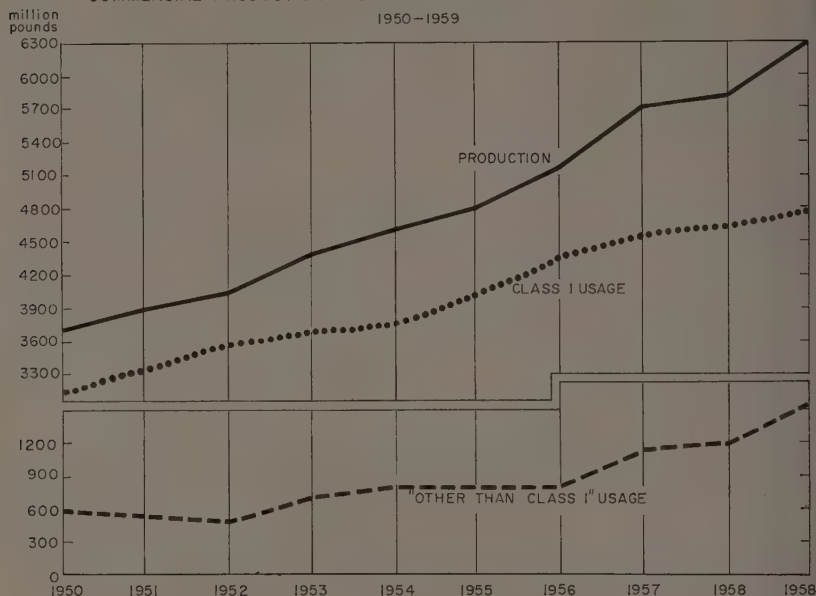
The bureau filed 23 court actions and three license actions during the year. Five court actions were filed against the bureau. Collections of civil penalties amounted to \$4,300.

**Dairy Industry Advisory Board**

Building sales of milk and milk products for California's dairy industry is the primary goal of the California Dairy Industry Advisory Board. Closely related is the objective of developing better consumer understanding of the economic importance and public health significance of the dairy industry and its products for every one of the State's citizens.

# COMMERCIAL PRODUCTION AND USAGE OF MARKET MILK IN CALIFORNIA

1950-1959



The Advisory Board carries on a diversified but co-ordinated program of activities designed to create favorable consumer attitudes about dairy foods; attitudes which will work in behalf of greater use of dairy products. The overall program includes many techniques for educating, informing, and motivating consumers in every age group.

The California Dairy Industry Advisory Board carries on a continuing program of research into the nutritional values of milk and milk products, as well as practical studies designed to enhance their consumer-appeal through improvements in flavor and quality and through the development of new dairy products and new uses for existing products. Research projects are sponsored by the board at several of the leading study centers in the State, including the University of California and the School of Medicine, University of Southern California.

Since dairy products belong in the daily diet of people at all age levels, the educational program carried on by the Advisory Board contains an abundance of authentic educational material covering the food needs

and interests of everyone, from youngest infant to oldest adult.

While most of the several million booklets, leaflets, and posters distributed annually by the board find their way into public and private school classrooms, many thousands of copies also are used by baby-care and pre-school-child-care classes for young parents, meal-planning and food-preparation programs for other homemakers, nutrition conferences for senior citizens, men's and women's service-club meetings, and a variety of youth-group functions outside the schools.

## Board Develops Special Materials

An important part of the educational service of the Dairy Industry Advisory Board is the development of specialized materials to broaden the ways in which students learn about the dairy industry. Since biological and physical sciences play their part in the production and processing of dairy foods, teachers are encouraged to use Advisory Board instructional materials about milk products for some of their science teaching. Similarly, dairy cows and dairy farmers have played important roles in the economic

history and development of the nation and of the West. By providing information and teaching materials pointing out some of these facts, students are given new insights into the importance and value of California's dairy industry.

Showing the relation of liberal use of dairy foods to the development of sound teeth and bones, good vision, healthy skin, strong muscles, mental alertness and many other aspects of physical health makes a real contribution to the physical education and health education phases of the school curriculum throughout the grade levels.

Creating and distributing films and filmstrips for the different subject matter fields is still another phase of the board's educational program.

The impact of the Advisory Board's research and educational programs on California consumers is increased through several other types of program activity. At least four times during the year all parts of the State are covered thoroughly with award-winning outdoor billboards carrying a brief, concise dairy foods sales message, such as "Make Mine Milk."

Institutional or no-brand-name sales messages also were carried to consumers by food store posters and banners supplied by the board, especially during the observance of June Dairy Month.

Additional consumer interest in dairy foods were developed through the medium of exhibits at fairs.

Wider use of dairy foods by California homemakers results from the year-round publication of recipes and photographs of delicious main dishes, salads, desserts, and special occasion foods made from dairy products. Staff home economists develop a steady supply of new ideas for using all dairy foods to add taste appeal and high nutritional value to meals. These ideas are made available to food page editors, radio and television home economists throughout the State, as well as being incorporated in illustrated recipe booklets which are offered to homemakers through many special programs.

The activities of the California Dairy Industry Advisory Board are financed by assessments paid twice a year by all producers and first handlers of milk produced and processed commercially within the State. Assessments are paid by both the producers and handlers at the rate of one-half

cent per pound of milkfat on milk produced during the months of May and October. There are 25 members of the Advisory Board, representing all phases of the industry and the different geographic areas of the State. The board maintains offices in Sacramento, San Francisco, Fresno, Los Angeles and San Diego.

The following are members of the California Dairy Industry Advisory Board:

	<i>Expiration date</i>
R. A. Beaty (handler), Foremost Dairies, Inc., 425 Battery St., S.F.	10/31/61
George S. Bulkeley (handler), Carnation Company, 5045 Wilshire Blvd., L.A.	10/31/60
Raymond B. Bush (handler), Safeway Stores, Inc., 2538 Telegraph Ave., Oakland 12	10/31/62
Anthony V. Cardoza (mkt. milk prod.), Rt. 2, Box 481, Tulare	10/31/60
A. H. Clark (mkt. milk prod.), P.O. Box 418, Soledad	10/31/62
Ned M. Clinton (mkt. milk prod.), 7831 E. Jackson St., Paramount	10/31/62
George Dondero (handler), Petaluma Cooperative Creamery, Western Ave. and Baker St., Petaluma	10/31/61
Robert Ferl (mkt. milk prod.), Rt. 1, Box 3792, Redding	10/31/60
James N. Fulmor (mkt. milk prod.), P.O. Box 577, Dixon	10/31/60
James George (handler), Challenge Cream and Butter Assn., 929 E. Second St., L.A. 12	10/31/60
Vernon Hansen (handler), Crystal Cream and Butter Co., 1013 D St., Sacramento	10/31/60
Walter Harpain (producer-handler), 3949 N. Barton, Fresno	10/31/61
Clarence E. Hauschildt (mfg. milk prod.), Rt. 2, Box 920, Galt	10/31/61
Roger Jessup (producer-handler), Jessup's Certified Farm, 5431 San Fernando Rd. W., Glendale	10/31/62
Charles A. Judson (mkt. milk prod.), Escondido	10/31/62
Robert McCune (mkt. milk prod.), P.O. Box 666, Paramount	10/31/62
Weldon Mattos (mfg. milk prod.), P.O. Box 46, Volta	10/31/60
C. S. Musser (prod.-handler), Shady Grove Dairy, E. Seventh St. & Grove Ave., Upland	10/31/60
Harlan Nissen (handler), Beatrice Foods Co., 2223 Jesse St., L.A.	10/31/62
R. E. Osborne (handler), Knudsen Creamery Co. of Cal., 1974 Santee St., L.A.	10/31/61
Wayne J. Peacock (handler), Waynes Dairy, P. O. Box 871, Bakersfield	10/31/62
Albert J. Pedrazzini (mfg. milk prod.), Loleta	10/31/61
A. C. Pollard (mkt. milk prod.), Rt. 1, Box 5070, Turlock	10/31/61
Larry Shehadey (handler), Producers Dairy Delivery Co., Inc., 144 Belmont Ave., Fresno	10/31/62
William H. Stabler (handler), Arden Farms Co., 1900 W. Slauson Ave. L.A.	10/31/61

# Bureau of Shipping Point Inspection

H. W. PETERSON, *Chief*

P. V. STAY, *Assistant Chief*

The Bureau of Shipping Point Inspection operates an optional self-supporting service under a co-operative agreement between the California Department of Agriculture and the Agricultural Marketing Service of the United States Department of Agriculture.

This certification service enables growers, shippers and financially interested parties to secure official certificates of quality, condition, pack, size and grade on fresh fruits, vegetables and nuts.

The authority for this service is contained in Chapter 1, Fruit and Vegetable Certification, California Agricultural Code, and in Title 7, Chapter 1, Sections 51.1 through 51.67, Agricultural Marketing Service, United States Department of Agriculture.

Federal standards usually provide the basis of inspection and certification. However, any written standards or written contractual standards may serve as the basis for this service.

Forty-seven other states have similar working agreements with the United States Department of Agriculture. California ranked first in volume of work performed in 1959, as for many years.

The Agricultural Marketing Service also maintains a Receiving Market Inspection Service in about 80 cities or markets throughout the country. This service, upon requests from any financially interested operator, also conducts appeal inspections on lots or carlots when the original shipping point certificates are contested. The confidence of the produce trade in the California service is indicated by the small number of reversals over a period of many years.

The bureau conducted operations in 40 areas throughout the State during 1959. There were 11 permanent district offices maintained where fresh commodities were shipped throughout the entire year. The remaining 29 districts operated on a seasonal basis. Some of these districts were open only for five to ten weeks, while others extended to periods of six to eight months, with service available as needed.

Inspections are made only upon request of persons or agencies having a financial interest in the product offered for inspection. Generally, these requests are from growers or shippers but they may also originate from railways, cold storage firms or other organizations desiring to establish the quality, condition, or grade of a product. A considerable volume of certification work is handled for industries having marketing control programs.

In order to visualize better the coverage necessary to carry on the work, in one commodity the bureau made inspections for 400 different handlers in certifying a total of 3,398,495 packages of nectarines during the shipping season. One hundred seventy-one of these handlers shipped less than 500 packages each, 79 of the 171 shipped less than 100, and 43 shipped less than 50 packages each.

The certification work of the bureau for 1959 is divided into the following classes:

- 1.-Optional Service. Inspections were made either on the basis of actual carloads, truck lots or other designated quantities. This type of service is used by the trade as means to facilitate trading and as a quality control to protect their brands.

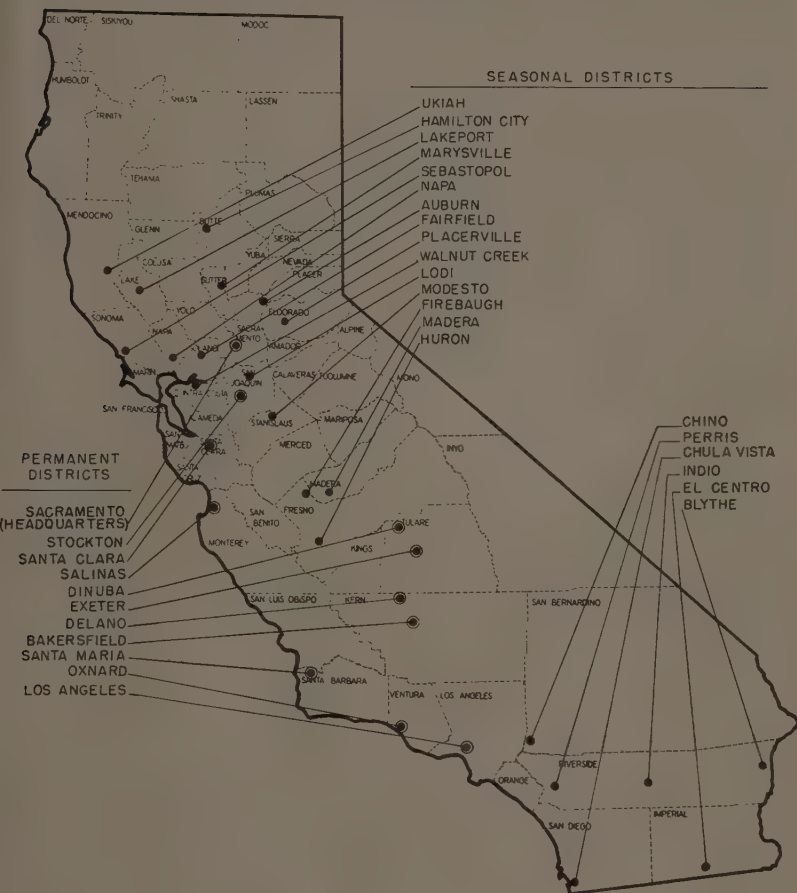
Many operators use the service covering their entire shipments, while others place orders for inspection on a designated number of carloads per day. One citrus organization has used this service, on a definite portion of their weekly shipments, the past four years in lieu of their own inspectors to maintain a quality control over their products.

The greater part of the volume work of the bureau is made up of this type of operation and certifications usually are made on the basis of U.S. standards.

2. Service under federal and state marketing orders. This included inspection work on interstate shipments of surplus almonds, plums, pears, Elberta peaches, Desert grapefruit, Tokay grapes and inter- and intrastate shipments of nectarines. Under the California state orders certification covered intrastate movement of Winter pears, Desert



# DISTRICTS OF THE STATE FURNISHING SHIPPING POINT INSPECTION DURING 1959



grapefruit and grower deliveries of pears for canning.

3. Service for Canadian imports. Certification is required by the Canadian government on importations to Canada from the United States and to Mexico on 25 different fruits and vegetables. Shipments originating in Mexico are inspected in Mexicali and Tijuana. For most of these products, the import regulations require the shipments to meet the lowest established U.S. Grade.

Higher restrictions than the minimum U.S. Grade are placed on apples, pears and potatoes.

4. Service involving the U.S. Export Apple and Pear Act. Under provisions of the U.S. Export Apple and Pear Act all commercial shipments of apples and pears destined to a foreign country must be certified to show specific compliance as to grade, size and other factors.

5. Service involving imports from foreign countries. Certification is required on those products under federal marketing orders to determine compliance with the provisions of the existing order on products which are imported into the United States from foreign countries.

6. Service involving fresh products for processing. This is an optional service with certification being made on the basis of U.S. Grades, industry standards or on the basis of individual grower and processor contracts.

During 1959 the basic fee charged was \$12 per standard carload. The exceptions to this were: (1) Contractual agreements with four commodity groups under federal and state marketing programs, (2) hourly charges, (3) minimum guarantee arrangements, (4) a hundredweight charge for the Long White potato areas, (5) on an experimental basis a combination hourly plus package charge. The combination charge involved the total shipments of two cantaloup shippers, three celery shippers, one lettuce shipper and one grape shipper and during November and December all mixed lots of fruits and vegetables in Los Angeles. This latter arrangement proved to be quite successful.

The general administration of the bureau is handled by the chief and assistant chief who are employed on a co-operative basis as federal supervisor and assistant federal supervisor.

In addition, three area supervisors and 11 district supervisors are designated as agents or collaborators by the United States Department of Agriculture. These as well as all other inspectors of the bureau are licensed for this work by the United States Department of Agriculture.

At the request of the commodity groups in California, the supervisory force of the bureau co-operated with the Fresh Products Standardization Section of the Agricultural Marketing Service in revising U.S. Standards for beet greens, celery, shelled walnuts and walnuts in the shell. The standards for the following products for processing also were revised: broccoli, cauliflower and sweet potatoes. Considerable progress, at industry request, was made toward the revision of cantaloup, lettuce, nectarine and sweet pepper standards.

The volume of work for 1959 totaled 164,903 inspections compared with 167,673 for 1958. The lowest volume of work was in March when the bureau reached a low of 76 inspectors. The period of maximum employment was in July when a peak of 309 was reached.

During the year approximately 60 different products were certified. This included 33 vegetables, 12 deciduous or stone fruits, 5 citrus fruits, 5 types of melons and 4 types of nuts.

**Annual Total Shipping Point Inspections**

<i>Commodity</i>	1959	1958	1957	1956	1955
Cannery pears	30,627	28,327	32,615	35,416	30,077
Potatoes	25,903	40,851	47,268	47,399	54,112
Grapes	20,673	20,585	21,223	24,217	26,423
Lettuce	13,690	11,807	17,319	15,935	20,626
Celery	13,477	14,367	14,263	15,400	15,610
Plums	7,021	5,548	7,328	8,522	7,529
Tomatoes	6,796	5,629	7,152	7,756	8,065
Nectarines	6,764	3,802	*	*	*
Pears	6,382	5,411	6,935	6,659	5,084
Oranges	4,147	2,777	5,488	10,967	7,611
Peaches	3,336	3,562	5,043	4,517	6,313
Carrots	2,953	2,251	2,689	3,155	4,334
Cabbage	2,582	2,641	1,701	1,492	1,868
Contract grapefruit	2,581	3,715	2,854	2,565	2,563
Cantaloups	2,522	1,587	1,778	1,223	*
Onions	1,935	2,706	3,217	2,632	2,518
Lemons	1,802	3,282	3,236	2,085	1,986
Almonds	1,541	*	*	*	*
Strawberries	*	1,041	2,243	2,105	1,366

\* Below the 1 to 19 leading commodities for that year.

# Bureau of Weights and Measures

JAMES E. BRENTON, Chief

MURRIS G. WOOD, Assistant Chief

The Bureau of Weights and Measures enforces those parts of the Business and Professions Code pertaining to weights and measures, petroleum, antifreeze, brake fluid, standard bread loaf and special provisions relating to farm products as contained in Divisions 5 and 8 of the California Business and Professions Code.

Chapter 8, Title 4, California Administrative Code, contains rules and regulations governing tolerances and specifications for commercial weighing and measuring devices, standards established for specific commodities, tare weight of containers used in delivery of edible agricultural commodities to processors and quality standards for brake fluid with the exception of products under the control of the Public Utilities Commission.

Every article or commodity sold or offered for sale by weight, measure or count, is subject to quantity inspection at the retail and wholesale level.

The quality of gasoline, motor oil, antifreeze and brake fluid must meet minimum standards before these products can be sold or offered for sale in California.

A heavy portion of Weights and Measures enforcement work falls on the county sealers of weights and measures.

The work of the bureau includes the supervision of all public weighmasters and assistance to county sealers in the investigation of intercounty complaints.

Three Weights and Measures Investigators make periodic inspections of public weighmaster records, insist on compliance with legal requirements, and instruct weighmasters and their deputies in proper procedures. Through their efforts, the errors resulting from the use of faulty equipment and fraud, or carelessness on the part of the weighmaster, have been greatly reduced.

The increased sale of commodities in package form during the last 10 years has added to the duties of sealers and deputy sealers of weights and measures in checking prepackaged commodities, both food and nonfood items.

Most counties have assigned one or more deputies as package specialists who spend their full time in package checking and development of a long range commodity weighing program.

The need for a uniform method of procedure in sampling and check weighing of packages and in the reporting of results has been apparent. Hearings have been held to adopt regulations governing the procedure to be followed by sealers in connection with the checking of prepackaged commodities.

TABLE I

## 1959 Summary of Activities of Bureau Inspections

Weighmaster inspection and investigations.....	1,683
Vehicle scales.....	2,351
Other scales.....	2,983
Liquid petroleum gas meters (liquid).....	1,619
Liquid petroleum gas meters (vapor).....	1,509
Written orders to conform.....	229
Petroleum inspections.....	10,706
Samples analyzed.....	5,381
Signs corrected.....	2,650
Vehicle tanks gauged.....	87
Farm milk tanks.....	13
Prosecutions.....	49
Convictions.....	41
Office hearings.....	29
Pumps and meters (petrol).....	267
Rebrands.....	1,448
Anhydrous ammonia meters proven.....	6
Special tests for test meters.....	24
Special tests for provers.....	19

## Certification of County Standards

Volumetric standards.....	316
Linear standards.....	40
Standards of mass.....	4,869
Meter provers (volumetric).....	34

## Licenses and Permits Issued

<b>Public Weighmasters</b>	
Principal.....	2,550
Branch.....	1,543
Deputy.....	16,304
<b>Gasoline, Distillate and Oil</b>	
Motor fuel pump license tags.....	98,260
Antifreeze permits.....	70
Brake fluid permits.....	95

**TABLE II**  
**1959 Annual Statistical Report**  
**County Sealers of Weights and Measures**

Establishments visited during 1959					193,848
Packages or containers inspected:	{	Light	393,891		
		Correct	3,567,509		
		Heavy	574,135		
		Total		4,535,535	
Lubricating oil bottles tested:	{	Inspected	40,144		
		Passed	36,773		
		Condemned and confiscated	220		
		Sealed without correction	Sealed after correction	Out of order	Condemned and confiscated
Scales:					
Counter—other than computing		15,584	8,276	3,078	103
Spring		35,650	10,697	2,942	715
Computing		56,738	26,278	7,992	345
Platform and dormant		21,852	14,192	5,812	158
Tank		226	147	55	0
Hopper		1,344	1,262	442	17
Livestock		1,689	927	408	18
Vehicle		3,062	2,595	1,298	59
Person weighers		8,035	2,039	1,667	276
Meat beams and steelyards		2,375	797	325	28
Abattoir (monorail)		1,711	1,142	578	11
Prescription		2,028	2,594	96	5
Railroad track		84	87	8	—
Weights		411,050	4,684	812	1,587
Vehicle tank compartments gauged		1,945	1,396	206	—
Vehicle tank meters		2,948	2,775	756	16
Bulk plant meters		959	625	179	—
Retail pumps and meters		103,700	18,304	7,511	95
Lubricating oil meters (retail)		4,086	61	89	2
Grease meters		20,183	547	702	35
Linear measures		10,048	65	283	63
Liquid capacity measures		62,747	530	74	69
Farm holding tanks		1,080	323	185	—
Totals		769,394	100,343	35,498	3,602
Prosecutions					409
Convictions					375
Acquittals					11
Citations					0
Cases pending					45
Otherwise disposed of					11
Total fines paid					\$18,543.00

# DIVISION OF PLANT INDUSTRY

ALLEN B. LEMMON, *Chief*

Many of the functions of the seven bureaus comprising the Division of Plant Industry are carried on in co-operation with the county agricultural commissioners. Special efforts are being made to co-ordinate the work, and encourage adoption and use of the best techniques and procedures. Particular attention has been paid to training of county inspectors through workshops held in various areas throughout the State to review procedures in seed inspection, pest detection, apiary inspection, and other phases of the work. Many of those attending these conferences have expressed the opinion that they have learned ways to do better work and that greater uniformity will result. The activities of bureaus in the Division of Plant Industry are reported under bureau headings.

Two of the most pressing problems that are being given attention have to do with insect contamination of food and pesticide residues on produce. Insect contamination in the various stages of preparation of food for human consumption has been a problem since the earliest days of food packing. There is a definite effort on the part of food processors to improve the acceptability of individual products, and under federal and state laws, food is adulterated if it is contaminated by insects or insect parts. At the request of representatives from the food processing industry, study was commenced for the purpose of developing information pertaining to the problems presented through increased numbers of vinegar flies

(Drosophilidae), sap beetles (Nitidulidae), and the naval orangeworm, *Paramyelois transitella*. It is hoped to develop programs for suppression of these pests.

The important problem of pesticide residues on produce was brought to acute attention in November through nationwide publicity concerning federal seizures of cranberries reported to be carrying pesticidal residues remaining from weed control materials. Although no cranberries are commercially grown in California, the resultant discussion and action raised questions concerning the status of pesticide residues on the many crops that are raised in California, as well as in other parts of the United States.

For over 30 years there has been an effective enforcement program intended to prevent fresh and dried fruits and vegetables from being sold in California or shipped out of the State with excessive spray residue. The tolerances for lead arsenic, fluorine, and DDT, set forth in the Agricultural Code, correspond to those adopted by the U.S. Food and Drug Administration. The 1959 Session of the Legislature amended the state law to provide authority for the director to establish tolerances for other pesticidal residues under standards similar to those used by the U.S. Food and Drug Administration. At the end of the year proposals were being drafted for a hearing to set tolerances for residues of pesticides that may remain on produce.



# Bureau of Chemistry

ROBERT Z. ROLLINS, *Chief*

DeWITT BISHOP, *Assistant Chief*

The Bureau of Chemistry administers those portions of the Agricultural Code pertaining to fertilizing materials, economic poisons, spray residue on produce, agricultural pest control business, and use of injurious materials.

The work is done through the headquarters office and a district office in Sacramento, and three district field offices in Los Angeles, San Francisco, and Visalia. The main laboratory is in Sacramento. Branch spray residue laboratories are located in Los Angeles, San Francisco, and Salinas, with a seasonal one in San Diego and a laboratory in Bakersfield exclusively for analysis of agricultural gypsum.

Official samples analyzed during the year represented 3,409 commercial fertilizers, 554 agricultural minerals, 4 manures, 13 auxiliary plant chemicals, and 26 soil amendments, making a total of 4,006 fertilizing materials. In addition, samples were drawn representing 2,199 pesticides and 2,263 lots of fruits, vegetables, fodder, and hay.

Along with this regular work, to determine the standard and quality of agricultural chemicals, the laboratories analyzed 792 samples of miscellaneous materials for numerous other government agencies and county agricultural commissioners. Oil was determined in 364 samples of avocados as a measure of maturity, making a grand total of 9,624 samples.

The bureau's laboratory activities are confined to its official analytical work and cooperative aid with related agencies and county agricultural commissioners. The bureau is not authorized to do commercial analytical work for individuals in competition with private commercial laboratories.

In 1959, the Los Angeles office of the bureau was moved to Room 915, Halliburton Building, 1709 West Eighth Street, Los Angeles.

## Commercial Fertilizers

During the fiscal year 1958-59, a record 457 firms received registration of commercial fertilizers. Even though a few companies fail to renew, there is an increase every year

in the number of registrants. The number has doubled in the past 10 years.

The commercial fertilizer tonnage sold in California has increased continually, and industry tonnage reports for the calendar year totaled 1,268,756 tons. Assuming a 5½-day work week, this amounts to 4,436 tons delivered daily to farmers in California. Mimeographed announcements of the tonnage reported on a quarterly basis were published.

During the year, 3,409 official samples of commercial fertilizers were secured for analysis. This includes 156 samples of aqua ammonia, in addition to those analyzed in the laboratory. These were secured by inspectors for hydrometer test in the field and found above guarantee. Of all samples analyzed, 528, or 15.5 percent, were deficient. This is 2.5 percent less than the previous year.

In Southern California, 27 investigative interviews resulted in acknowledged warnings to manufacturers who had been selling fertilizer deficient in guaranteed analysis. During the hearings the companies were given opportunity to show cause why further action should not be taken against them and to explain what steps they would take to correct violations.

In some instances interviews and written warnings were not sufficient to secure compliance. Criminal complaint actions were needed where violations continued. During the year, three complaints were filed. In one case, after maintaining a better than average performance in delivery of dry mixed fertilizer for more than 10 years, the firm's record deteriorated to 47 percent deficient in 1958. Even after a hearing in mid-year, its record of deficiencies for 1959 was 42 percent. A criminal complaint was subsequently filed. The firm was found guilty and fined \$210.

The two other complaints were against commercial fertilizer manufacturers who were fined for negligent control of production resulting in shortages of plant food. The fines amounted to \$525 and \$250.

A fertilizer salesman cited in 1954 for selling fertilizer without a license and for

misrepresenting his product left the State before the warrant was served. A renewed effort by him to obtain registration in 1959 was delayed until he answered in a California court to the previous violation. He was fined \$350 and placed on probation for one year.

During the year, 285 companies were audited. Of these, 242 companies had submitted correct reports and paid the correct tonnage license tax, 39 were short in their payment, and four had overpaid. The deficient tonnage tax plus a 10 percent penalty was levied on the firms that were short. Refunds were paid to those firms who overpaid.

### **Agricultural Minerals**

During the fiscal year 1958-59, the number of firms registered to sell agricultural minerals continued to increase slightly and reached an all-time high of 193 as compared to 185 during the previous year.

The tonnage of agricultural minerals sold also increased to a total of 1,181,342 tons during the year. This was the first time that sales exceeded 1,000,000 tons and the amount has more than doubled in the past 10 years. Gypsum continued as the major agricultural mineral. It accounted for 1,086,089 tons. A large portion of the gypsum deliveries originate in the surface deposits along the west side of the San Joaquin Valley from Dos Palos to Maricopa. The guaranteed analyses for these deposits range from 40 percent to 70 percent.

During the year, 554 official samples of agricultural minerals were collected by inspectors. Of these, 128, or 23 percent, came from deliveries found to be deficient. Inspections and analyses of gypsum shipments totaled 361. Deficiencies were found in 96 samples. Surface deposits of gypsum vary considerably in quality. Frequently deficiencies result from overguaranteeing the material or failure to use chemical control analyses of representative samples.

The total number of samples was 32 less than the previous year. This could be expected as time was applied otherwise to investigate and collect evidence for court action against firms with repeated deficiencies.

Complaints were filed against two gypsum firms that continued, after warning, to deliver deficient material. Both were found guilty. One paid a fine of \$50 and the other paid a fine of \$250. A 30-day jail sentence

combined with the latter fine was suspended depending upon no conviction during a one-year probation.

Investigative hearings and a district attorney hearing were held with five gypsum registrants to establish a notice of warning for sale of substandard gypsum.

The sales records of 162 registrants were examined to determine if the correct tonnage license tax was paid. The audits showed 150 firms had submitted correct reports and payment. Eleven were short, and one overpaid.

Senate Bill No. 570 amended Section 1038 of the Agricultural Code to continue for another two years the present tonnage license tax rate of three cents per ton for agricultural minerals.

### **Manures**

During the year, four brands of packaged manure were sampled. Three were labeled steer manure and the fourth was labeled sheep manure. More samples were drawn in 1958 than in 1959 due to a special survey in the previous year. The samples in 1959 corroborated the earlier findings.

In the steer manure, nitrogen ranged from 0.81 to 1.67 percent, available phosphoric acid 0.92 to 1.8 percent, and potash 1.93 to 3.18 percent.

Manure is frequently bought both for its plant food content and the organic matter it provides for mulch.

Polyethylene lined bags which resist deterioration due to moisture and bacterial action have extended the marketing facilities of manure.

### **Auxiliary Plant Chemicals**

Auxiliary plant chemicals, as defined by the Agricultural Code, are hormones, auxins, enzymes, synthetic polyelectrolytes, lignin, or humus preparations, biocatalytic soil conditioners and materials for aiding water penetration, stopping fruit drop, promoting rooting, inoculating soil; and, similar materials for influencing plants and soils.

A total of 56 firms were registered to sell 180 different materials. Gibberellic acid products used for influencing the growth of grapes, seed potatoes, and for the treatment of certain legume seeds were registered by 40 percent of the firms.

Many auxiliary plant chemicals are sold to increase water penetration or loosen soil. In contrast, a new use was found for polyvinyl alcohol. It was registered for the first time as a chemical to form a crust on soil

to prevent erosion by wind and water. Other materials registered for the first time during the calendar year were an ammonium carboxylate preparation and an alkyl naphthalene sodium sulfonate, both for increased water absorption in soil.

During the year, 13 samples of auxiliary plant chemicals were analyzed, of which eight were naphthalene acetic acid preparations for prevention of preharvest fruit drop. One sample was a gibberellic acid preparation.

The other four samples represented soil-water penetration solutions. Each was described as an extract derived from liquid excrement of healthy lactating cows induced by culture of bacteria and algae. These products contain 99.50 percent water and 0.50 percent organic matter.

#### **Soil Amendments**

Soil amendments include peat, peat moss, leaf mold, and sand mixtures intended solely for potting plants; also soil conditioner type minerals such as pumice, clay, and vermiculite when intended solely for their physical nature and with no claim for chemical or plant food constituents. During the year 26 samples of soil amendments were analyzed.

The different products vary widely in their composition and most of the samples contained organic matter ranging from 26 to 86 percent; and moisture ranging from 8 to 51 percent. Most of the products were sold by volume measured in cubic feet rather than by weight.

Exaggerated statements were made about an imported liquefied seaweed paste claiming it to be a deterrent of insect pests and supplier of all elements from which plants would select what they needed. A district attorney hearing and several subsequent visits were held with the people from three primary firms promoting the product. The promoters of the product were compelled to revise their claims to more truthfully advertise the seaweed paste.

A proposal to market an extract of flowers, claimed to be of value for correcting any plant deficiencies, eliminating pests and producing prize flowers was dropped because the promoters could not corroborate the claims.

#### **Pesticides**

During the fiscal year 1958-59, a total of 1,073 firms secured registration of pesticides. The number exceeded the total of 1,054



Any pesticide residue on celery is substantially reduced when the harvested crop is immersed in a water dip tank and conveyed through a high pressure jet wash inside the cooler (left) before crating.

firms licensed during the previous year and established a record high. General registration to sell pesticides was issued to 841 firms and limited-type registration permitting sale of pesticides not to exceed a total retail value of \$500 was issued to 232 firms.

Every pesticide product sold by these registrants must be separately registered. A total of 13,786 different products were registered in 1959. This was an increase of 593 over the previous year.

Inspectors take samples for laboratory examination from pesticides offered for sale in the State, inspect labels for required information, and investigate suspected violations.

During the fiscal year 1958-59, 2,199 pesticide samples were analyzed, which is 7.5 percent less than analyzed during the previous period.

Approximately 85.5 percent of the pesticides met their guarantee. Deterioration during the period a product is held for sale is one cause of deficiency.

#### **Agricultural Pest Control**

During the calendar year, 1,392 persons or firms secured an agricultural pest control operator's license. This represents an increase of five over 1958.

The 1959 Legislature amended the Agricultural Code relative to filing reports of loss from pest control operations. The law now applies to application of pesticides in any manner. Prior to the clarifying change, this section of law seemed only to refer to pesticides applied by aircraft.

Any person suffering loss or damage resulting from use or application, by others, of any pesticide must file with the county agricultural commissioner a verified report of such loss within 60 days after observing the damage or, if a crop is involved, before 50 percent of that crop is harvested. The law specifies the information required in the reports. The failure to file a report is not a bar to civil action for recovery of damages, but proof of failure to file the report shall create a rebuttable presumption that no such loss or damage occurred. The bureau prepared a sample report of loss form and sent copies to each county agricultural commissioner.

A total of 44 known reports of loss were filed during the year. The causes of loss were alleged to be drift of liquid defoliant, drift of 2,4-D to trees and cotton, contamination of insecticide spray in aircraft used

previously for 2,4-D, faulty recommendations and overdosage of pesticide around young trees, drift of arsenical weed killer to pasture, eight cases of poisonous dusts affecting honey bees in nearby apiaries, and drift of DDT onto alfalfa pasture.

Another amendment to the law passed by the 1959 Legislature provides for suspension of a pest control operator's license when any judgment becomes final against the operator, and said judgment has not been satisfied within 30 days. Operators who furnish proof of financial responsibility, such as insurance coverage, are exempted from the 30-day provision.

In contrast to previous years, no complaints were received that 2,4-D used to spray grain fields in San Joaquin County caused injury symptoms in the large vineyard area a few miles away.

Improper pest control operations resulted in prosecution of several operators. Failure to register with the county agricultural commissioner resulted in prosecution and fines of \$100 each against two operators, and a third forfeited \$105 bail. An operator's license was suspended 90 days, with 75 days stayed pending three years' probation. A citrus grower was fined \$100, which was suspended, for misuse of parathion. Operation without a license, failure to register, and misrepresentation brought a suspended 10-day jail sentence pending two years' probation to another operator. At the end of the year three cases were not settled. Two had not come before the court and one defendant could not be located.

#### **Aircraft in Pest Control**

Certificates of qualification were issued to 495 pilots. Apprentice certificates were issued to 192 apprentice pilots. In previous years the total number of both classes continued to increase slightly but this year the total was four less than in 1958. While there were 12 additional qualified pilots licensed this year than in 1958, there were 16 fewer apprentice licenses issued.

Requirements for certificate of qualification were raised by the Legislature. Now a pilot must serve as an apprentice for one year, after which he shall submit a certified statement from a licensed aircraft operator that he has completed at least 150 hours of operation of fixed wing aircraft or 50 hours of operation of nonfixed wing aircraft within the past two calendar years in agricultural pest control.



Four pilots were killed in agricultural aircraft accidents during 1959. A fifth pilot was killed in fire fighting by aircraft. Information was sought in each case to determine whether the pilot's vision or reflexes were affected by exposure to organic phosphates. None were believed to be so affected.

### **Injurious Materials**

Public hearings were held in Sacramento and Los Angeles to amend the injurious materials regulations. Guthion and Chipman 6199 were removed from the list of injurious materials. Data submitted at the hearings showed that Guthion, while highly toxic if swallowed, is only moderately toxic when absorbed through the skin. Testimony showed that large quantities had been distributed and used without injury even in other parts of the world where agricultural practices were primitive and workers observed few precautions. Guthion is not marketed for home garden use where there are hazards of exposure to children.

Chipman 6199 is no longer marketed in the United States. Thus it was removed from the injurious materials list.

The Legislature amended Section 1080 of the Agricultural Code to permit hearings on proposed injurious materials regulations to be held wherever convenient instead of specifying that they be held in Sacramento and Los Angeles as formerly required.

### **Accidents**

The bureau makes an effort to collect information on damages, injuries, and accidents attributed to pesticides and fertilizing materials on the belief that the more we know about how these agricultural chemicals can cause trouble, the better we will know how they should be labeled, handled, and used.

Giving pesticides special attention for this purpose should not obscure the fact that pesticides account for only a small portion of the 200 or more deaths caused annually in California by accidental poisoning. Aspirin, for example, causes as many deaths to children in California as all pesticides.

During the year, information was obtained on 11 accidental deaths in California from pesticides. This is a "normal" number in comparison with former years. Most accidents happened to children less than five years old. Sodium arsenite weed killer solution was involved in four deaths, parathion in two, and nicotine, Trithion and lindane each accounted for one. Two deaths in-

volved pesticides only in an indirect and questionable way. Three times during the year escaping fumes of soil fumigants injected into cultivated ground during the day caused near panic to neighboring residents. There was no likelihood of acute poisoning but escaping tear gas fumes were very irritating to eyes. Atmospheric conditions conducive to this type accident can be forecast by air pollution control offices. Repeated annoyance of this nature is almost certain to result in local restrictions that may restrict future use of tear gas-type fumigants for control of soil pests.

### **Spray Residue**

Regular inspection is made of fresh fruits, vegetables, and hay on the wholesale produce markets of Los Angeles and the San Francisco Bay area.

Periodic seasonal inspection is made in the San Diego region, Monterey Bay area, and other parts of the State. In 1959, a total of 2,263 samples were analyzed for spray residue. Many more individual analyses were made than indicated by the total because many samples were examined for more than one pesticide.

Overtolerance amounts of pesticides were found on 150 lots in the Los Angeles area and four in San Francisco. None was found in Salinas or Sacramento. Of all the samples analyzed, 1,748 were original samples of suspected lots in channels of trade. Of these, 154 or 8.8 percent carried more than allowed residue. This is a much higher percentage than would be achieved if a random cross section sampling was made of produce in the market. The figure is more a credit to inspectors' accuracy in sensing which lots were suspected and required further chemical examination than it is an indication of an existing market condition.

Produce bearing more spray residue than permitted by law was immediately quarantined out of sale and held pending proper handling. In the meantime, prompt investigation was made to determine the cause for the overtolerance and to prevent further delivery on the following day.

In case of violations, warning letters were sent, or investigative interviews were conducted to establish details and emphasize the warning. Records of violations were kept on file. Approximately 20 investigative hearings were held. Four separate farmers were cited for selling produce with excessive residue. Two were convicted and



paid fines of \$157.50 and \$267.50. Two cases were pending at the close of the year.

Use of persistent chlorinated hydrocarbon pesticides on feed for dairy cows, or even using them nearby where drift can contaminate feed, is very likely to cause contamination of the milk. To obtain some information on the residue situation, the bureau started a survey of the crop wastes used as feed. Four freezers, one dehydrator, one soup manufacturer, and two canners of fruits and vegetables were inspected. Most of these plants gave the waste vegetable debris to dairymen, hog raisers, and other cattlemen. Three samples of fresh pea vines were analyzed for DDT. None was found. Samples drawn from various type materials showed DDT 3 to 34 parts per million. In

some cases toxaphene was found at 3 to 6 ppm. Some sweet corn waste contained DDT at 3.2 parts per million and one sample contained 43.3 parts per million. The possible consequences of using such material for feed were pointed out.

Several important amendments to the spray residue law were made by the 1959 Legislature. The scope of the law was extended to include "food in its raw or natural state when in such form as to indicate it is intended for consumer use without any or further processing." The amendments also clarified the provision with regard to establishment of permissible tolerances in order that California tolerances could be made the same as those of the federal government insofar as possible.

## Bureau of Entomology

ROBERT W. HARPER, *Chief*

STEWART LOCKWOOD, *Assistant Chief*

The Bureau of Entomology performs specific regulatory and service functions as follows: insect pest detection and surveys; eradication, suppression and control programs; commodity treatment and general pest control investigations; co-operative reporting of insect conditions; taxonomic identification; and supervision of apiary inspection.

### INSECT PEST DETECTION AND SURVEY

The protective level and intensity of statewide insect pest detection and survey programs were increased in 1959 with 18 specified campaigns as compared to 14 in 1958. Table I lists these varied activities and shows manpower and inspection unit totals. Programs added were (1) pickleworm and melonworm, (2) plum curculio, (3) rice insects and (4) pecan insects.

The bureau is responsible for the formulation of a statewide insect pest detection and survey program to insure early discovery of dangerous agricultural pests and for the development and training of county agricultural commissioner personnel in the performance of the work. Each county was

provided a proposed plan of detection effort covering a fiscal year period, and urged to take the responsibility for providing required manpower.

The State Department of Agriculture, in addition to providing equipment and materials, training and, when desired, initial technical field assistance, supplied manpower when shortages occurred.

The U.S. Department of Agriculture took part in the search for cotton and rice insects and in Khapra beetle surveys, and supplied considerable equipment. Federal participation is generally confined to new programs of national importance, their research development of new insect detection equipment and techniques being of greatest significance.

#### Pink Bollworm

Search for pink bollworm and other important cotton pests not known to occur in California consisted of five phases namely: blossom inspection, Argon ultraviolet light trapping, gin trash inspection, lint cleaner inspection and green boll inspection.

Blossoms inspected this year totaled almost four and three-quarter million com-

pared to about one-half million in 1958. The number of acres covered in this work increased proportionately.

The number of Argon ultraviolet light traps deployed for the detection of adult pink bollworm increased from 65 in 1958 to 139 in 1959. The attachment of automatic time switches to the traps reduced the consumption of Argon bulbs and made possible the elimination of many dusk-flying moths and beetles from the trap catch. Optimum hours for pink bollworm capture are later in the night. In addition to the outdoor Argon traps, small single-bulb Argon traps were operated during November and December inside the major cottonseed warehouses in California in an effort to detect pink bollworm adult moths that might have pupated and emerged due to the warmth of the micro-climate.

Gin trash inspection made use of eight federal gin trash machines and resulted in over 42,000 bushels inspected compared to 34,000 the previous year. The heating of seed cotton as it enters the gin for drying purposes, seriously reduced our pink bollworm detection efficiency in the Imperial and Palo Verde Valleys. Federal research personnel are currently endeavoring to solve this problem by developing a trash-extracting device for installation in gins between the intake and the first reel dryer.

Lint cleaner inspections were on a level with the previous year. Overheating in gin driers also reduced the efficiency of this detection phase in certain areas. Green boll inspection was increased to over twice the number of bolls examined the previous year.

Efforts to discover incipient pink bollworm infestations in California cotton acreages continued negative.

#### **Fruit Fly Trapping**

The deployment and operation of Steiner and McPhail type fruit fly traps in Southern California for detection of Mediterranean, melon, Oriental and Mexican fruit flies was continued on a level comparable with that of the previous year. A re-evaluation of climatological tolerances of these four fruit fly species brought about major change in trapping procedures north of the Tehachapi Mountains. The Frick (cardboard carton) trap, using powdered ammonium carbonate lure, replaced the Steiner and McPhail traps (with lures designed specifically for the above-mentioned tropical and subtropical species), giving Central and Northern Cali-

fornia an "all-purpose" tool for detecting dangerous temperate zone fruit flies, such as apple maggot, European cherry fruit fly and the Japanese orange fly.

#### **Grape Leaf Skeletonizer**

Another peripheral survey of the western grape leaf skeletonizer infestation in San Diego and Riverside Counties revealed an apparent withdrawal of this pest from its previously known boundaries. Most of the periphery exhibited no signs of the moth or its characteristic host damage. In other areas parasitization effects continued high.

#### **Pickleworm and Melonworm**

The discovery of three adult specimens of *Diaphania hyalinata* in pink bollworm Argon light trap catches in October near Ripley, Riverside County and Winterhaven, Imperial County, caused intensification of the search for these cucurbit pests in Southern California. Visual survey of cucurbit hosts in these areas revealed two patches of wild gourds, *Cucurbita palmata*, in the Winterhaven-Bard area infested with larvae of the melonworm. These finds, coupled with the interception of pickleworm, *D. nitidalis*, larvae in air shipments of cucurbit fruits grown in the La Paz section of Baja California, resulted in the deployment of several Argon traps in the winter cucurbit-growing acreages of San Diego and Los Angeles Counties.

#### **Wheat Sawfly**

For several years *Pachynematus* spp. larvae have been collected on native grasses in the Sierra Nevada Mountains, from Alpine County to Modoc County. These larvae could not be differentiated from *P. sporax* larvae by taxonomic specialists, since adult males are essential to specific identification. This year a concerted effort by bureau and county personnel resulted in the collection of a single male, identified as the wheat sawfly, near Crescent Mills, Plumas County. This information adds strong evidence to the belief that the wheat sawfly is an endemic species, living on native grasses in the mountainous areas of the Sierra Nevada and Tehachapi Mountain ranges. A Los Angeles County inspector found a few similar larvae on wheat and barley and a heavy infestation on native "big squirrel-tail grass" in the Antelope Valley. No adult males were found to confirm the species as *P. sporax*.

## MISCELLANEOUS DETECTION AND SURVEYS

Several other scheduled programs, such as Japanese beetle, sweet potato weevil, European corn borer, white-fringed beetles, Mexican bean beetle, citrus whitefly and pecan insects, were conducted with negative findings.

Entomologists of the University of California (Davis) discovered the rice water weevil, *Lissorhoptrus oryzophilus*, in experimental rice plantings at the Rice Experiment Station near Biggs in Butte County. Subsequent delimitation surveys revealed that the pest which may prove to be of some economic concern, had spread over a 500 square mile area covering parts of Butte, Sutter, Glenn and Yuba Counties.

A thrips, *Gynaikothrips uzeli*, known as the Cuban laurel thrips, and representing a new California record, was found widespread in San Diego County. Investigations indicate that host trees of economic importance are not threatened by this pest which subsequently was found widespread in Mexico.

### Co-ordinated Detection and Survey

Where feasible, inspection of a given crop for insect and diseases is co-ordinated, eliminating duplicate entry of properties by entomologists and plant pathologists. In 1959, co-ordination was accomplished in rice insects and European corn borer programs.

### Training

Nineteen fifty-nine marked a major step ahead in the training of county personnel in insect pest detection and survey techniques. Twenty all-day training workshops were held throughout California for county, state and federal personnel. Films, slides, detection equipment and other visual aids were used to augment lecture material. More than 400 persons participated in these training sessions.

## INSECT ERADICATION AND SUPPRESSION PROGRAMS

### Citrus Whitefly, *Dialeurodes citri*

The current Sacramento citrus whitefly infestation, discovered in 1958, was treated for the second consecutive season. The area of known infestation embraced 22 city blocks with buffer zones bringing to 51 the number of blocks subject to eradication. Two gallons of light medium oil in



Pupal cases of the rice water weevil, *Lissorhoptrus oryzophilus*, on roots of a sedge. Photograph by W. H. Lang, University of California, Davis.

100 gallons of water was used in the spray application. During postspray inspections a light infestation of live citrus whitefly was discovered on an orange tree. This tree, and a portion of three surrounding city blocks, were re-treated using oil and DDT in the event that adult emergence had occurred. Reinspection of this area failed to reveal live specimens.

### Spruce Needle Miner, *Taniva albolineana*

Due to warm spring weather, spray applications to eradicate the incipient infestation of this pest in Alturas, Modoc County, was initiated in mid-April, 30 days earlier than usual. DDT wettable powder plus spreader was used, the same formula employed in 1957-58.

Three hundred nine trees on 136 properties were treated using 2,700 gallons of mixed spray which was consistent with previous seasons' operations. Since countywide inspections have been completed the survey was concentrated in western Modoc County on the theory that reconnaissance over approximately one-half the county in alternate years would provide adequate safeguards without undue expenditures. In areas extending southeast from Tulelake to Alturas, including the communities of Adin and Lookout and south to Likely, a total of 205

spruce trees on 74 properties were checked. No signs of active infestation were noted in any district, including the infested area of Alturas.

#### **Wheat Sawfly, *Pachynematus sporax***

Spray treatments for the suppression of wheat sawfly populations in the Cuyama Valley were continued for the sixth consecutive year. The area, which includes portions of Santa Barbara, San Luis Obispo and Ventura Counties, received two over-all spray applications during April. All wheat, barley, volunteer and summer fallow fields were sprayed by aircraft using one pound actual DDT in one gallon diesel oil per acre. The first coverage totaled 19,804 acres and the second 19,518. Goode Canyon was re-treated after each application as it was here that the last positive finding was made in 1957. Intensive prespray and poststray inspections again failed to record wheat sawfly survival. Subsequent field developments, in other parts of the State, as discussed under Insect Pest Detection and Survey, may lead to discontinuance of further treatment operations, pending additional investigations and re-evaluation of the statewide problem.

#### **Hall Scale, *Nilotaspis halli***

The federal-state co-operative program for eradication of Hall scale will soon complete the broad plan of inspection and treatment begun in 1941. The treatment phase of operations was concluded in 1958 with the third consecutive fumigation of all areas of infestations. Three intensive inspections of all areas followed treatments. A total of 48,946 host trees was treated and 17,784 were removed since inception of the program. In delimiting the areas of infestation and confirming successful eradication, a total of 1,066,813 host trees on 43,843 properties have been checked.

During the calendar year 1959 survey activities were confined to known areas of infestation and to outlying areas exposed to the insect or suspect host material. Three previously infested areas in Butte and Yolo Counties and six small communities in the former area were completed and dropped from the inspection program. Survey inspections in remaining Chico areas of infestation and in Paradise, Butte County, will be covered during the first six-month period of 1960.

A Superior Service Award was presented by Dr. M. R. Clarkson, Associate Administrator, Agricultural Research Service, U.S.

Department of Agriculture, to E. H. Fosen, director of the program, who received it on behalf of those associated with the project. The award was made to the group "for a major contribution to the progress of entomology through the successful eradication of Hall scale, an incipient insect pest, from the United States."

#### **Khapra Beetle, *Trogoderma granarium***

The number of new infestations discovered during 1959 continued to decline as measured against past year finds. Eight were recorded as compared with 15 in 1958 and 37 in 1957. In addition one property fumigated in 1955 was found reinfested as a result of contact with a previously undetected source of infestation. It is significant that only two of these finds involved distributors of host commodities, the balance represented feeder or storage conditions. Known infestations now are 340, with a total cubic footage of 83,313,722.

Eradication surveys to detect all established infestations of the pest continued at approximately the 1958 rate, with 7,339 man-days of effort expended in the inspection of 20,772 properties and the collection of 9,060 insect samples. Whereas one new infestation was discovered for each 125 inspections in 1955, and one for each 615 in 1957, 2,300-property inspections were required for each new find made in 1959. Current estimates calling for expenditures of 5 to 6 thousand man-days, during each of the next three years, may bring the primary project goals within reach. Experience has shown that the level of survey intensity must be held high to verify any successes claimed. Surveys at reduced levels must be conducted indefinitely to protect the work already accomplished.

Nine properties totaling 2,276,019 cubic feet were fumigated in 1959. Three of these represented repeat treatments. More than a ton of methyl bromide, nearly 7,000 gallons of diesel oil and over 100 gallons of malathion were used. During one three-month interval, no active infestations were known to exist in the State, the longest period of negative record since inception of the program. At the end of the year, four properties measuring less than one million cubic feet remained subject to treatment.

The co-operative nature of the program was continued with U.S. Department of Agriculture, County Agricultural Commissioner and University of California person-



nel participating. An estimated \$312,000 expenditure was required and assigned as follows: U.S. Department of Agriculture, \$165,000; California Department of Agriculture, \$102,000; County Departments of Agriculture, \$40,000; and University of California, \$5,000. In 1958 the expenditure totaled \$410,000.

#### **Western Cherry Fruit Fly, *Rhagoletis cingulata indifferens***

The onset of reasonably stable spring weather ushered in the first phases of the 1959 cherry fruit fly project in the Hoopa-Weitchpec areas of northeast Humboldt County. Nearly 2,500 seedling cherry trees, ranging from 1 to 12 inches in diameter were removed and many yard trees were topped to facilitate treatment operations.

An area-wide trap survey, intensified due to increased 1958 collections, was initiated with county assistance in late April in Humboldt, Siskiyou, Trinity and Shasta Counties. The number of traps in service gradually increased to 2,349 on 985 properties. Cherry fruits were processed throughout the season on an area-wide basis to detect larval infestations, with 1,246 pint samples collected in 992 property visits.

Initial spray applications were made during May in the Hoopa-Weitchpec area of Humboldt County and further eastward in Montague, Siskiyou County. Diazinon at one pound actual per 100 gallons was substituted for the methoxychlor previously used. Scheduled at 10-day intervals, 10 sprays were applied in Humboldt County and eight in Siskiyou County. Each series of treatments involved 307 hosts on 94 properties.

Widespread infestation, confirmed by larval collections, was recorded in 1959. The known range of the insect was extended by finds of established infestation in domestic cherries north and south of the previously recorded Hoopa-Weitchpec locations in northern Humboldt County. Seventy-five miles east in Siskiyou County numerous maggot infestations were found in the town of Mount Shasta and on a property at Humbug, west of Yreka. Adult flies were taken at Copco, Hilts and Dunsmuir.

In the absence of demonstrable morphological differences between flies from wild bitter cherry, *Prunus emarginata*, and cultivated fruit, it has been presumed that the population in sweet cherries was a strain of the insect which had developed a prefer-

ence for these varieties, maintaining themselves by choice in this host. While this conclusion has never been positively confirmed or denied, initial success in eradication action during 1951-56, supplemented by previous investigations in the northern Sierras, seemed to substantiate the feasibility of eradicating the "sweet cherry strain" of the insect supposedly introduced into limited areas along the Klamath River drainage. However, developments in succeeding years have greatly extended the known range of the "sweet cherry strain" and resulted in a critical questioning of the interrelationships and concepts upon which the program has been based. The possibility of flies from these native plants being the cause of sporadic but continuing sweet cherry infestation warrants further investigation. If this potential is confirmed a complete re-evaluation of the total program would be essential. Insect-host-climatic relationship data is also needed to predict the potentials of the species in commercial growing areas. Pending bureau-university studies seeking to resolve these points, project operations will be subject to minor adjustments.

#### **Mexican Fruit Fly, *Anastrepha ludens***

In contrast to the 114 adult specimens taken in 1957 and the negative recoveries of 1958, three Mexican fruit fly and one West Indian fruit fly, *Anastrepha mombinpraeoptans*, were trapped in Tijuana, Baja California, this season. However, the co-operative program of the Mexican Department of Agriculture, U.S. Department of Agriculture, California Department of Agriculture and county agricultural commissioners again was successful in preventing local establishment of the pests.

The California survey program continued to employ invaginated glass McPhail traps along with visual inspection of fallen or suspicious susceptible fruits at the levels indicated in Table II. One percent Staley's Protein Insecticide Bait No. 7 (SPIB No. 7) was the basic lure ingredient. Due to problems in the use of this material in local areas, trapping operations were modified to include the use of the standard brown sugar fermenting lure in about one-third of the traps. Deep coloring of the protein liquid, staining and rapid disintegration of specimens due to contamination by several types of micro-organisms tended to lower inspection effectiveness. An extensive series



TABLE I

## Detection-Survey Programs—1959

Insect	Man-days				UNITS INSPECTED					TRAPS	
	County	State	Federal	Acres	Progs.	Hosts	Blossom-bushels cleaners-balls	Total in service	Trap exposures (Trap X days)	Trap Inspects.	
Pink bollworm	195	168	385	98,366	1,092		4,738,734	139	20,952	14,331	
Blossom inspection	31	311	820								
Argon light trapping	482	565	50				42,853				
Gin trash inspections	38	40	108				8,476				
Lint cleaner inspections	305	150	17	154,546	1,846		515,719	3,580			
Green boll inspections	523	264			2,863			1,175			
All-purpose fruit fly (Frick)	(Combined with multipurpose)				1,137			1,094			
Mexican fruit fly (McPhail)	864	279			1,059						
Multipurpose fruit fly (Steiner)	76	28		18,796	527						
European corn borer	50	40		2,390	416						
Grape leaf skeletonizer	43	28		1,677	153			5			
Pickleworm and melonworm	72	66		26,127	435						
Wheat sawfly	10	4		208	55						
White-fringed beetles	10	1		820	54						
Sweetpotato weevil	220	12			563			839			
Japanese beetle	68	24		15,175	272						
Mexican bean beetle	270	126			6,086	43,042					
Citrus whitefly	32	51	28	30,965	246						
Rice insects	3	5			20	681					
Pecan insects											
Totals	3,292	2,162	1,408	349,070	16,824	43,723		6,832	20,952	14,331	

TABLE II  
Survey Operations

	Max. No. traps	Max. props. trapped	Total trap inspection	Total prop. visits	No. props. fruit insp.
San Diego Co. ....	281	83	14,612	3,966	0
State Project .....	1,355	447	60,559	23,220	219
USDA—Calif. ....	2,069	338	83,076	14,530	1,062
USDA—Mexico .....	2,162	1,004	95,641	—	96

TABLE III  
Treatment Operations

	Total trees treated	Total properties visited	Acres brush treated
State Project .....	298,295	36,359	1,125
USDA—Mexico .....	179,710	39,682	—

of bacteriostats, fungistats, and other chemical control agents were tested locally in the presence of walnut husk fly, *Rhagoletis completa*, and by the U.S. Department of Agriculture research laboratory in Mexico City to resolve the problem. Diammonium phosphate proved to be a favorable additive for controlling the causative agents without adversely affecting lure effectiveness.

Host test investigations were carried on in the Mexico City Laboratory on native and ornamental plants and fruits air-shipped from local project areas. Included in exposures this season were samples from the following genera: *Lagunaria*, *Persea*, *Phoenix*, *Rosa* and *Simmondsia*. Although eggs were deposited in some fruits and hatching occurred in some varieties, in no case did larvae live beyond the first instar.

Protective and eradicated treatments on both sides of the border were discontinued during the 1958-59 winter period with plans for renewal in mid-April in California and following positive finds in Baja California. One full spray application had been completed on the California side of the border when the first positive fruit fly find was made May 11 in Tijuana. Yard and street-side trees on both sides of the border received a maximum of 11 applications during the year, while five aerial applications to brush in canyons north and east of San Ysidro were completed. The treatment period was extended to mid-December to permit three full applications following the October 2 recording of an adult Mexican fruit fly in Tijuana. Data pertaining to treatment operations are included in Table III.

A re-evaluation of the State's spray program led to basic changes increasing the

effectiveness or efficiency of the operation. Included in the changes were application methods to provide a more uniform spray pattern on treated trees; use of a more concentrated spray mixture in the compression-tank sprayers but continuing unchanged the rate of toxicant and attractant per acre; strip spraying the areas to a greater extent than in former years; and assigning treatment of a 30-acre brushland area to mist blower rather than airplane application. Due to changes made, the total number of trees treated per application averaged about 18,500-yard trees on 3,300 properties and 9,000 trees along roadsides.

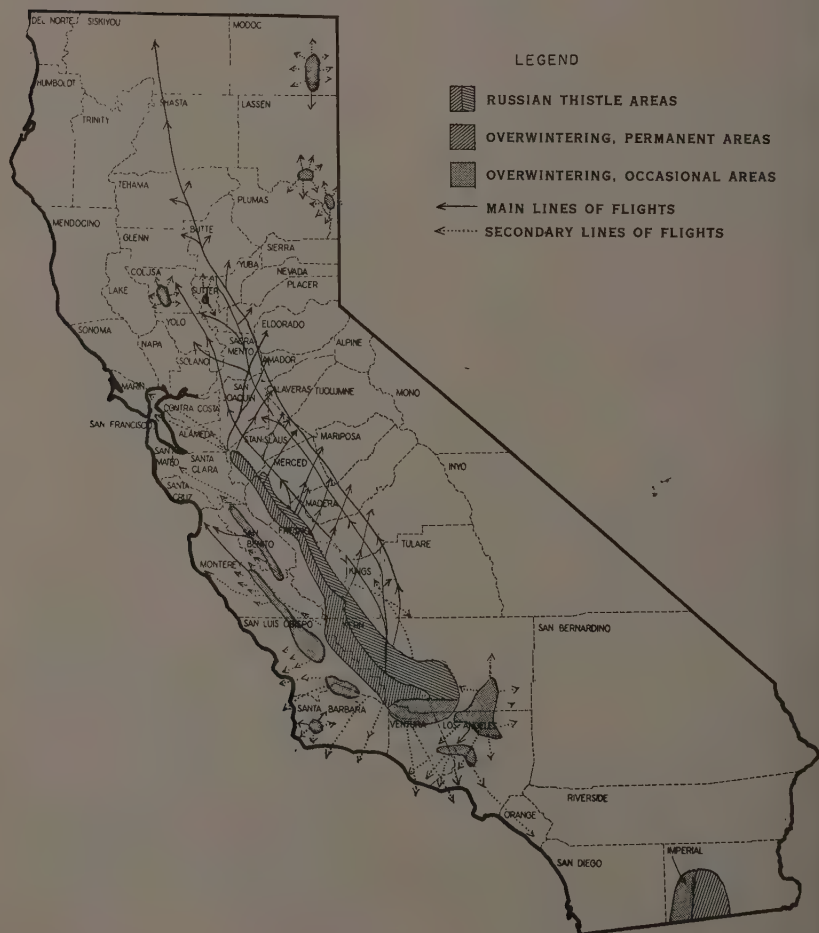
## MIGRATORY INSECT CONTROL PROGRAMS

### Beet Leafhopper, *Circulifer tenellus*

Foothill areas on the west side of the San Joaquin Valley from Alameda to Kern County serve as the principal breeding grounds of the beet leafhopper. Adult leafhopper flights into the Cuyama, Salinas, Santa Clara, San Joaquin and Sacramento Valleys each spring pose an annual threat to many important commercial crops. Rangeland spray campaigns to reduce leafhopper numbers include: (1) winter annual spraying in January and February; (2) spring annual spraying in March and April; (3) fall Russian thistle spraying in October; and (4) fall perennial brush spraying in November. Fixed-wing aircraft, helicopter and power-wagon mounted Buffalo turbine sprayers, using one pound of actual DDT and one gallon of diesel oil per acre, are employed in these operations. A total of 181,744 acres was sprayed during 1959, as shown by Table IV.

### Beet Leafhopper Spray Programs—1959

	Aircraft	Helicopter	Ground rig	Total
Winter annual _____	_____	5,086	1,535	6,621
Spring annual _____	_____	_____	8,610	8,610
Russian thistle _____	141,553	_____	13,680	155,233
Fall Perennial _____	3,670	_____	7,610	11,280
Totals _____	145,223	5,086	31,435	181,744

CIRCULIFER TENELLUS  
DISTRIBUTION IN CALIFORNIA

Helicopter services proved particularly effective for winter treatment applications as some areas were inaccessible to ground sprayers due to heavy February rains. Subsequent dry spring months caused winter vegetation to dry rapidly and reduced the acreage anticipated for spring treatment. Only in the Tracy area did late precipitation stimulate annual growth with the resultant development of a second spring generation of leafhoppers. Leafhopper collections from various locations were tested for virus transmission, with results ranging from zero to 33½ percent infection.

The first movement of beet leafhoppers from the foothills into adjacent valleys was reported in early April. By the end of May annual vegetation had dried and migrations to summer host plants were complete. During May, June and July, a series of field surveys in widely scattered areas, using highly susceptible tomatoes as the yardstick, were made to measure disease incidence and crop losses. Few infected plants were found indicating that the control program was effective. Increased plantings of susceptible beet varieties is further evidence of the value of protection afforded.

To prevent further extension of Russian thistle stands and to reduce acreages subject to fall treatment, a campaign is carried on annually in marginal rangeland areas to eliminate scattered plants and small thistle patches. Conditions warranting this type of action were found only in northern control areas extending from western Fresno to Contra Costa County. Six thousand seven hundred twenty-seven man-hours were given to hoeing 65,895 acres and 2,740 miles of road and ditch banks, nearly one-third less time than was required in 1958 due to the accumulative effects of the elimination work and subnormal seed germination.

Mapping surveys by helicopter to record Russian thistle acreages were made in June, and again in September. Initial acreage totals exceeding 240,000 were reduced to approximately 140,000 acres as unusually hot, dry weather persisted. By late September, leafhopper concentrations on Russian thistle ranged up to 50 per net sweep. This fact along with high percentages of overwintering forms gave indication that early October treatments would be in order. Routine perennial brush treatments followed the thistle program and leafhopper dispersal to canyon areas. Winter annual germination, subsequent to early rains in the Los Banos-

Tracy areas, led to leafhopper movement and to unusually early treatment of this host association during November. In areas of subnormal rainfall scattered leafhopper populations remain on perennial brush.

Increased survey attention was given to the Imperial Valley and adjacent desert terrain in order to more fully evaluate seasonal trends and contributing sources of leafhopper infestation. Beet field populations of the insect increased from five per 100 net sweeps in January to five per 10 sweeps in March, with the Calipatria area supporting the highest populations throughout the season. "Curly-top" damage to beets was spotted although some fields showed 30 percent infection. Flax, tomatoes and other susceptible crops suffered little loss. Following harvest and during August an industry-led beet-free period was maintained throughout the Imperial Valley in conjunction with a concerted, county-fostered weed host elimination program. For the first time in four years the companion insecticidal treatment of weed hosts was dropped due to reductions in host plants and low leafhopper counts.

Investigations indicate that leafhopper sources outside the immediate Imperial Valley area may contribute to the over-all problem. Russian thistle infestations in the vicinity of Jacumba, San Diego County, in the Santa Ana riverbed and Perris Valley of Riverside County and possibly in San Bernardino County support populations that will be further investigated to resolve potential inter-relationships.

#### **Grasshopper and Mormon Crickets**

Grasshopper outbreak expectations for the 1959 season, based on the adult surveys made in co-operation with county agricultural commissioners and the U.S. Department of Agriculture during the fall of 1958, indicated that over 4,500,000 acres of grassland in 49 counties would support infestations of potential seriousness in 1959.

This potential was still high prior to the start of, and during, the period of initial hatch in the spring. Nymphal mortality was unusually high in many areas, and reduced threatening infestations to noneconomic levels. Reductions in nymphal populations were due in part to adverse food supplies and drought conditions, reducing succulent plant growth to the extent that young grasshoppers actually starved. Fungus organisms, parasites and predators furthered population

reductions in many areas during the 1959 season, particularly in the lower end of the San Joaquin Valley. Specimens examined from different areas indicated that such reductions were due to the fungus, *Empusa grylli*, while in one area of Siskiyou County adult grasshopper mortality followed Sarcophagid fly attack.

During the control season of 1959, approximately 73,197 acres in 24 counties were treated on a voluntary basis. On a co-operative basis with the federal government, 2,303 acres were sprayed to prevent grasshopper damage to 25,000 acres of barley on the Lower Klamath Game Refuge in Siskiyou County. Treatment gave protection to an estimated 313,000 acres and resulted in estimated crop savings of \$13,000,000.

During the 1959 control season an estimated 3,467 pounds of aldrin, 2,450 pounds of toxaphene, 767 pounds of dieldrin, 533 pounds of chlordane, 378 pounds of heptachlor and approximately 346 pounds of miscellaneous insecticides were used throughout the State for grasshopper control. Most of these materials were applied in the form of sprays or incorporated with dry bran bait. In 1959 only 364 acres were dusted with various insecticides. Results were rated good to excellent.

A thorough adult grasshopper survey was made in the fall of 1959, in co-operation with county and federal personnel. The survey indicated that again 4,500,000 acres of grassland might support economic infestations during 1960. The counties reporting acreages averaging 15 to 28 grasshoppers per square yard are Del Norte, Merced, Marin, Mariposa, San Diego, San Luis Obispo, Santa Barbara, Shasta, and Siskiyou. Control activities may be required during 1960 on an estimated 250,000 acres.

As far as could be determined by localized surveys, no Mormon cricket infestations existed in the State during 1959.

#### COMMODITY TREATMENTS— PEST CONTROL INVESTIGATIONS— CO-OPERATIVE ECONOMIC INSECT REPORT

A number of fumigation chambers were checked, upon request, to determine efficiency or eligibility for official certification. The number of officially approved fumigation chambers in the State now totals 52. Eight certificates of approval were cancelled or revoked while two were issued during 1959.

Letters, telephone calls and personal contacts were used in providing control information regarding household, garden, nursery stock, orchard and field and stored products pest problems. Inquiries involved such pests as snails, ticks, mites, powderpost beetles, vinegar flies and scale insects.

Under a co-operative agreement with the U.S. Department of Agriculture, Agricultural Research Service, Plant Pest Control Division, the bureau serves as a clearing-house for information depicting insect conditions in California. The bureau receives reports from co-operating federal, state and county agencies, as well as from agricultural associations, farm groups, chemical companies and university experiment stations and extension service. The reports are reviewed for insect occurrence and abundance and a weekly summary of highlights is included in the U.S. Department of Agriculture's Cooperative Economic Insect Report. Monthly and annual recapitulations of statewide insect conditions are prepared, including a list of the 10 most important insect-mite species attacking agricultural crops and estimated costs and losses attributable to insect attack.

The reporting of new insect species or extensions in the range of others has been a valuable channel for informing all interested agencies. Several feature articles in trade journals have appeared as a result of this information service.

#### SYSTEMATIC ENTOMOLOGY

The insect identification laboratory made a total of 178,613 specific determinations during 1959, nearly 120,000 more than during 1958 and more than 77,000 above the previous high mark of 1956. This tremendous increase is due primarily to intensified pink bollworm surveys which began late in the 1958 season. Beginning in 1928, it took until 1952 to reach the half million mark in cumulative identifications. The one millionth identification was made in 1959. Table V illustrates the source of identification totals and measured workload effort.

An Olethreutid caterpillar of the genus *Eucosma*, the larva attacking lower stem and upper roots of chrysanthemums, has been submitted a number of times this past year. Infestations of this sort are widespread in California and have been noted over a period of many years. The insect is probably common to certain native composites related to chrysanthemum. Until adult moths are reared





W. C. Bauer, Systematic Entomology, examining moths from pink bollworm light trap. Examination is made under evacuation device improvised to eliminate respiratory irritation from wing scales.

from chrysanthemum, no final identification is possible.

Illustrating the value of specific trapping programs and their production of additional insect species of interest or importance was the finding of a rare spider-collecting wasp, *Dipogon calipterus rubifer* (Cresson), in McPhail fruitfly traps. Both sexes of this wasp came to traps in Orange County and in San Diego County. Previously the subspecies had been known by only two female specimens. The trapping of melonworm specimens, *Diaphania hyalinata*, in Arizona border areas of Riverside and Imperial Counties, is another example of such recoveries.

Asiatic bamboo-boring Bostrichids of the genus *Dinoderus* are now widely distributed. In California the species *minutus* Lec. is widespread and relatively common. More recently another species, *brevis* (Horn), has come to notice, a collection coming to the laboratory from Santa Barbara. Another *Dinoderus*, which has been intercepted in quarantine from Missouri, is *japonicus* Lesne.

A dried fruit nitidulid beetle, known as the corn sap beetle and designated as *Carphophilus dimidiatus* (F.), was supposedly very common in California. Actually *dimidiatus* is uncommon in this State, the common form here being *C. mutilatus* Er.

Certain flowering cherries in William Land Park in Sacramento have shown late season rusting and tip die-back. Investigation discloses a heavy infestation of *Aculus satiloba* (K.), a rust mite first described from peach in Israel.

A scale insect found on silktassel bush, *Garrya* sp., at Cuyama, Ventura County, was initially reported as *Quadraspidiotus ostreaeformis* (Curtis), the European fruit scale, and as such represented a new host record and also a new pest species in California. The original determination now stands corrected, the scale since identified as *Aspidaspis arctostaphyli* (C & R), a native species widespread in California but recorded from a new host plant association.

A European cricket, *Platycleis tessellata* (Champ.), has been previously reported from the Sierra foothills. This species is gradually spreading and now occurs from Yuba to Calaveras Counties and in Sacramento.

The dry grass range grasshopper in central and coastal California has long been known as *Melanoplus devastator* Scudder. The alfalfa grasshopper of the Antelope and Imperial Valleys has been called *Melanoplus mexicanus* (Saussure), the lesser migratory grasshopper. A recent publication by Gurney & Brooks (1959) revises the concept of these species groups and changes part of the names. The devastator grasshopper is recognized as a distinct species, *M. devastator* Scud. The Antelope and Imperial Valley alfalfa grasshopper is now *M. biliteratus defectus* Scud., and the intermediate form on the east slopes of the Sierras is *M. biliteratus biliteratus* (Walker). The devastator grasshopper has one annual generation and frequents dry areas, whereas *M. biliteratus* has two generations and lives on green alfalfa or on green grass around springs, lakes and streams.

The laboratory insect collection, used in identification work, is growing rapidly. It consists of many thousands of pinned specimens, specimens preserved in alcohol vials, and on glass slides. There are 15 aluminum-covered cases, holding approximately 350 trays, in which the pinned and alcoholic specimens are filed. The pinned specimens are in small unit-system boxes, each box holding one species. There is also an extensive card file in the laboratory for fingertip reference to data on insect occurrence in California.

The oldest and largest North American insect and mite collections are in the eastern part of the United States. We depend on these collections and on specialists working in connection with these collections for many important species identifications. In order to give our own identification special-

TABLE V  
Insect Identification Totals for 1959

	State	County	USDA	Misc.	Totals	Representative work units
General	1,259	5,062	664	808	7,793	(x5) 38,965
Quarantine	3,664	490			4,154	(x2) 8,308
Surveys						
General	1,251	26	102		1,379	(x2) 2,758
Fruit fly	12,144	18,881	99		31,124	(x1) 31,124
Khapra beetle	5,619	1,577	5,150		12,346	(x9) 111,114
Pink bollworm	30,304	3,421	88,092		121,817	(x1) 121,817
Totals	54,241	29,457	94,107	808	178,613	314,086

ists firsthand experience with these eastern collections, and to acquaint them with the workers there, annual visits and training courses are attended. In 1959 H. H. Keifer participated in a three-week conference at the Institute of Acarology, University of Maryland, contributing his knowledge of blister mites to the session.

Photographs taken by the laboratory fall into three main categories. The first group involves those used in connection with various training courses in which the bureau participates. These pictures, in addition to life history stages, include typical damage, taxonomic aids, charts depicting population trends and maps showing distribution. The second category includes pictures taken for illustrating official publications. The last type might be termed record photographs, covering insects in their natural state before dissection, perishable host material, gall formations, etc. In order to allow our laboratory entomologists to publish their contributions to insect and mite identification, a series of *Occasional Papers* has been developed as an outlet for this type of article. *Occasional Papers* are issued upon the completion of an individual article and printed by the Xerox process.

## APIARY INSPECTION

### Disease

The incidence of American foulbrood among honeybee colonies showed a sharp increase in 1959. Inspection records indicate that 6,365 colonies were found to be diseased with American foulbrood as compared to 3,652 in 1958.

The disease increased most seriously in association with widespread migratory operations involving apiaries located in more than one county. Some large apiary operators suffered severe losses because of un-

successful attempts to cure diseased colonies with medicants, resulting in a spread of the disease in apiaries. Several areas in the State continued to show low, or even reduced incidence of American foulbrood despite the statewide increase.

During the past season 425 brood smears and 31 samples of adult honeybees were submitted by county inspection personnel for laboratory diagnosis to determine if disease was present. American foulbrood was diagnosed in 169 of the brood smears, European foulbrood was present in 29 smears and *Nosema* diagnosed in seven of the adult honeybee samples. The remaining 225 smears and 24 samples contained no apparent bacterial or protozoan infection. Inspectors' field diagnoses of American foulbrood were appealed by two apiary operators, one from Butte County and the other from Stanislaus County. Laboratory examinations confirmed the inspectors' findings in both cases.

More than 20,000 individual honeybees were collected, dissected and microscopically examined by state and county personnel during August and September in an attempt to determine if the Acarine disease-causing mite, *Acarapis Woodi* (Rennie), was present in a Shasta County beekeeper's queen-rearing apiaries. Australian quarantine officials had reported interception of this mite in a queen bee shipment originating from that source.

Investigation revealed that an external mite, *Acarapis dorsalis*, had been mistaken for the disease-causing species. No Acarine disease was found. Acarine disease, a major threat to the beekeeping industry and common in some countries, has never been found in North America. Canada and the United States prohibit the importation of live honeybees which could introduce the disease-causing mite.

TABLE VI  
Record of Inspection

County	APIARIES			COLONIES		
	Registered	Inspected	Diseased	Registered	Inspected	Diseased
Alameda	190	150	44	3,724	2,519	583
Alpine	—	—	—	—	—	—
Amador	10	13	4	350	461	5
Butte	219	283	26	18,084	8,637	83
Calaveras	27	17	3	517	332	5
Colusa	166	67	17	11,120	3,786	66
Contra Costa	11	100	22	107	2,537	187
Del Norte	—	—	—	—	—	—
El Dorado	10	14	4	89	537	19
Fresno	119	968	—	20,541	13,655	554
Glenn	205	72	6	6,904	1,994	47
Humboldt	7	1	1	31	3	1
Imperial	905	85	18	37,715	3,674	38
Inyo	—	10	3	—	483	18
Kern	330	312	107	32,456	11,730	590
Kings	59	25	4	16,891	935	13
Lake	40	40	8	377	377	55
Lassen	32	11	1	1,925	687	1
Los Angeles	628	549	138	26,209	12,224	595
Madra	71	166	29	8,674	4,346	127
Marin	15	2	—	390	44	—
Mariposa	—	6	6	—	458	96
Mendocino	13	13	4	89	77	6
Merced	162	279	162	21,875	12,102	767
Modoc	—	37	8	—	728	71
Mono	—	—	—	—	—	—
Monterey	2	25	5	28	1,062	34
Napa	47	44	13	2,950	412	43
Nevada	14	8	5	87	106	10
Orange	231	301	64	6,289	11,533	201
Placer	—	37	5	—	1,895	38
Plumas	—	—	—	—	—	—
Riverside	432	80	22	17,677	4,179	111
Sacramento	72	19	2	3,287	1,096	4
San Benito	—	—	—	—	—	—
San Bernardino	443	386	92	11,865	18,509	516
San Diego	368	180	39	17,293	5,860	121
San Francisco	1	—	—	1	—	—
San Joaquin	74	18	7	5,128	326	23
San Luis Obispo	83	31	9	4,139	3,959	34
San Mateo	95	93	5	950	1,014	7
Santa Barbara	76	83	2	2,910	2,772	19
Santa Clara	49	17	3	1,484	467	21
Santa Cruz	106	18	4	2,903	432	15
Shasta	—	—	—	11,780	5,847	64
Sierra	—	—	—	—	—	—
Siskiyou	35	8	5	1,490	233	42
Solano	275	184	6	5,750	7,560	10
Sonoma	90	92	26	5,998	1,982	93
Stanislaus	50	68	7	4,735	3,724	422
Sutter	182	114	32	12,013	5,334	155
Tehama	201	63	5	9,660	2,175	14
Trinity	—	2	—	—	9	—
Tulare	85	33	14	19,386	887	99
Tuolumne	37	5	—	436	250	—
Ventura	295	208	41	20,685	7,453	268
Yolo	56	36	—	2,076	1,131	13
Yuba	55	55	18	4,086	3,096	61
Totals	6,673	5,428	1,046	388,154	175,539	6,365

Percent apiaries inspected which were found diseased	19.27
Percent colonies inspected which were found diseased	3.6
Percent estimated number of colonies in the State which were registered	68.1
Percent estimated number of colonies in the State which were inspected	30.8

### Poisoning

Forty-two cases of insecticide poisoning were reported by beekeepers during 1959. Many more went unreported. Parathion, dieldrin, Sevin, malathion and BHC have been most injurious to bees, particularly when applied to cotton, alfalfa, citrus, melons and lima beans. Locoweed, *Astragalus* spp., poisoning of bees was encountered in Santa Clara County during early April. Western false hellebore (corn lily), *Veratrum* sp., caused considerable loss of adult bees in apiaries located in the Goose Lake area of California and Oregon during July and August.

### Training

Apiary inspector workshops were held during January and February at four points in the State; San Dimas, Red Bluff, Fresno, and Stockton. Apiary inspection personnel from 32 counties participated in the two-day workshops with an average of 21 persons attending each session.

### Inspection

State personnel performed apiary inspections in the Counties of Mariposa, Inyo and

Trinity which are without county inspection services. New apiary inspectors were trained in the Counties of Colusa, El Dorado, Contra Costa, Alameda, and Napa. State personnel assisted with apiary inspection in 36 counties. Assistance was given to counties which had specific apiary inspection problems.

### Enforcement

A beekeeper was arrested for falsifying a bill of sale upon which a notary public seal had been affixed. Eight beekeepers were served warrants for illegal disease exposure or movement of diseased colonies, one was fined and placed on probation. Several others were served warnings either in writing or at hearings in their district attorney or agricultural commissioner offices. Three lots of bees and equipment totaling 35 colonies were reported stolen during 1959. None were reported to have been recovered.

### Registration

Apiary brand numbers were registered to 78 beekeepers in 1959. Identification numbers were assigned to 102 beekeepers. The use of one of these numbers is required of every beekeeper who moves his bees or who does not keep them at his residence.

## Bureau of Field Crops

HARRY E. SPIRES, *Chief*

VAN P. ENTWISTLE, *Assistant Chief*

The Bureau of Field Crops administers five functions under the Agricultural Code. All activities are supported from funds collected under laws which established the functions. Offices and laboratories are maintained at Sacramento, Stockton, San Francisco, Oakland, Petaluma, Vallejo, Corcoran, Fresno, and Imperial (seasonal).

### Field Crops Inspection

The total number of inspections of grain, rice, beans, hay, and safflower declined 17 percent from the record of 1958. A considerable drop in barley exports during the last half of the year was the chief contributing factor. Also, large stocks of government-owned milo remained in storage, resulting in lack of space to handle additional surplus grain. A definite increase in foreign

purchases of surplus rice was recorded. Both milled rice and brown rice were exported to the extent that stocks of California rice were practically depleted at time of harvest of the 1959 crop.

Of interest during the year was the increase in export inspections in Southern California. During July, August, September, and October, temporary facilities were established in San Diego to inspect flaxseed for the first time in that area. Additional export inspections of wheat and flaxseed were made at the Port of Long Beach. Approximately 25,000 tons of wheat and flaxseed were exported during the year from these two ports.

Total export of barley, wheat, flaxseed, corn, and milo during the year was 403,700 tons compared to 688,000 tons in 1958.

**TABLE 1**  
**Inspection Certificates Issued for the**  
**Past Three Years**

	1957	1958	1959
All grains combined	44,910	63,642	47,752
Rice, beans, hops, and hay	16,318	18,759	20,220
Miscellaneous commodities and services	4,183	4,933	4,502
Totals	65,411	87,334	72,474

**TABLE 2**  
**Field Crop Inspections 1959**  
**Number of Certificates Issued**

	Grain	Rice, beans, hops, hay	Misc.	Total
Corcoran	3,035	13	—	3,048
Imperial	6,965	3	2	6,970
Los Angeles	2,765	370	839	3,974
Petaluma	3,146	12	45	3,203
Sacramento	3,406	1,190	13,055	17,651
San Francisco	3,840	2,585	2,549	8,974
Stockton	21,234	135	3,730	25,099
Vallejo	3,361	194	—	3,555
Totals	47,752	4,502	20,220	72,474

#### Commercial Feeding Stuffs

The Commercial Feed Law is primarily a labeling law requiring feeds to be labeled

with certain guarantees as to quality and ingredients present. An inspection tax of 4 cents a ton is payable on all sales to the consumer-buyer. Over 95 percent of this tax is collected by quarterly reporting of sales by the manufacturer or distributor. Periodic audits made to verify the accuracy of the self-assessment, resulted in approximately 2 percent recovery during the 1958-1959 fiscal year.

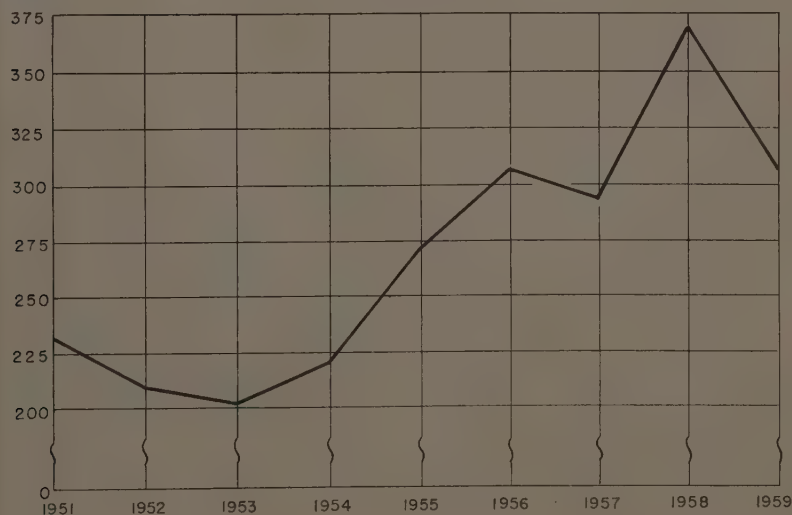
Production of commercial feed reached an unprecedented high during the year with an increase of approximately 700,000 tons as compared to the previous three years: Based upon receipts of the 4 cents a ton inspection tax on all feeds sold to the consumer-buyers, 5.3 million tons of commercial feed were sold. It is estimated that a large part of this tonnage resulted from the increase in the total number of cattle on feed. Subnormal rainfall with the accompanying lack of pasture also increased the demand for feed.

Based upon laboratory results, approximately 14 percent of feeds analyzed showed deficiencies requiring immediate correction. Alfalfa products, mineral feeds, and oil

#### FIELD CROP INSPECTIONS REVENUE

thousands of dollars

1951-1959





the elm trees, rhododendron plants and post-entry items.

The crops or other plants inspected, the number of counties and properties or locations visited in the inspection of each of these crops or other plants and, where applicable, the number of acres or trees represented in their inspections, are listed in Table 1. The postentry quarantine inspections were made of 52 lots of plant material imported during 1959 and 94 lots held under quarantine from previous years. There were 44 lots eligible for release during the year and 102 remain under quarantine.

Particular emphasis was placed on inspections for the witchweed parasite, *Striga asiatica* (L.) Kuntze, of corn; the clubroot fungus, *Plasmodiophora brassicae* Wor., of crucifers (outside of its known area of occurrence in the State); the Dutch elm disease fungus, *Ceratocystis ulmi* (Buis.) Moreau; the phloem necrosis virus of elm; the mosaic virus of peach (outside of its known area of occurrence in the State); the hoja blanca virus of rice; and the bunch disease virus of walnut. None of these serious plant pathogens was found in the areas where inspections were made. Plant disease organisms and disorders of particular interest that were found are as follows:

A bacterium isolated from a leaf spot found on celery foliage in Orange and Santa Barbara Counties was identified as *Bacillus polymyxa* (Prazmowski) Migula by Dr. M. P. Starr of the University of California. This organism is the cause of a soft rot in certain vegetables (potatoes and green peppers).

The chestnut blight fungus, *Endothia parasitica* (Murr.) And. and And. was found infecting seven trees on two adjoining properties in San Joaquin County, on one of which diseased trees previously had been found. Infected trees were removed and burned under the direction of the agricultural commissioner.

Statewide inspections of commercial pear orchards revealed the presence of a condition called pear collapse in many orchards in the northern part of California. The condition was recognized by the presence of wilted, scorched and dead leaves, arrested fruit growth, and the general symptoms found in girdled trees. Roots one-eighth of an inch or less in diameter were dead. The symptoms were very similar to those reported for certain stages of the pear decline

disease which occurs in the Pacific North west.

Collapse-affected pear trees were found in Contra Costa, El Dorado, Glenn, Lake, Mendocino, Napa, Nevada, Placer, Sacramento, San Benito, Santa Clara, Solano, Sonoma, Sutter, and Yuba Counties. Pear growers in many of these counties suffered a severe loss in that large numbers of trees developed this disorder and were dead at the end of the year.

The European rhododendron rust, caused by the fungus *Chrysomyxa ledi* (Alb. & Schw.) de Bary var. *rhododendri* (de Bary) Savile, was found for the first time in California on cultivated rhododendron plants in Humboldt, Marin, Mendocino, and San Francisco Counties. This rust has been known in Oregon and Washington for several years. An examination of native rhododendron species in various parts of the State thus far has failed to reveal infection by this fungus. Another rust *Chrysomyxa piperiana* (Arth.), Sacc. and Trott., known in California for many years, occurs on both commercial and native rhododendron plants but appears to be limited to the coastal counties from Santa Clara north to the Oregon border.

The branched broomrape, *Orobancha ramosa* L., was found for the first time in California outside of its original area of occurrence in Alameda County. It was discovered in 56 acres of tomatoes on a property in Sacramento County and in 50 acres of tomatoes on a property in San Joaquin County. Eradicative measures involving the destruction of all plants in heavily infested areas of the fields, and intensive roguing of infected plants in lightly infested areas, were carried out by the county agricultural commissioners, and steps were taken to prevent spread of seed of the pest from the infested fields during tomato harvesting operations.

This broomrape also was found on one new property and on seven previously infested properties in the area of its original occurrence in Alameda County.

## PLANT DISEASE SUPPRESSION AND ERADICATION

The plant disease suppression and eradication projects with which the bureau was concerned during 1959 had to do with the tristeza (quick decline) virus disease of citrus, several virus diseases of peach trees, the parasitic flowering plant known as branched broomrape, *Orobancha ramosa* L.,

and the chestnut blight fungus, *Endothia parasitica* (Murr.) And. and And.

### **Tristeza (Quick Decline) of Citrus**

The tristeza project is concerned with (1) the inspection of citrus orchards for the tristeza disease; (2) the finding and removing of Meyer lemon plants in the Meyer lemon-free districts; and (3) the finding and testing of Satsuma mandarin orange trees for tristeza in these districts and the removal of those found infected.

State and county personnel inspected approximately 66,000 acres of oranges for the tristeza disease in Butte, Fresno, Glenn, Kern, Riverside, San Diego, Santa Barbara, Tulare, and Ventura Counties. Emphasis was placed on making the inspections outside of the areas quarantined for the disease in order to discover possible new and incipient infections so that early suppressive and eradivative measures could be taken. Only limited inspections, necessary to obtain information relative to the proper maintenance of the quarantine lines, were made in the quarantined areas, all of which are in Southern California and contain approximately 69 percent of the orange acreage of the State.

There was a very large increase in the number of diseased trees in most districts of the quarantined area, particularly noticeable in certain districts where formerly there had been a low incidence of the disease.

During the inspections outside of the quarantined areas, one new tristeza-infected property with 16 diseased trees was found near Orosi in Tulare County. The infections in these diseased trees appear to have resulted from top-working the trees with infected scionwood. Transmission tests are to be made of the scionwood source orchard to determine whether the disease is present.

Three new tree cases of tristeza were found on a previously known infected property. The scionwood used for top-working the trees was reported to have been taken from the orchard at Woodlake in Tulare County, mentioned in last year's report, where transmission tests later showed the disease to be present. Prior to 1959, these tests had been completed on 462 trees in the orchard and 22 infected trees had been found. During 1959, tests were completed on the remaining 395 trees in the orchard and one additional infected tree was found, bringing the total number of infected trees in this orchard to 23.

All tristeza-infected trees found to date in Tulare County have been removed.

Laboratory tests in connection with diagnosis were made of bark and rootstock samples from 131 trees. Transmission tests on Mexican lime seedlings were made for 449 trees.

Although most of the Meyer lemon plants in the Meyer lemon-free districts were found and removed prior to 1959, there were some additional plants found during the year. The records to date indicate that, as of December 31, 1959, approximately 5,066 Meyer lemon plants have been found on 3,665 properties in the districts since the latter were established in January 1957. All but 30 of the plants on 30 properties have been removed to date.

It is known that some Satsuma mandarin orange trees are symptomless carriers of the tristeza disease virus. Therefore, it has been necessary to find and test all those in the Meyer lemon-free districts not known to have been propagated from budwood and rootstock sources which were free of the tristeza virus. Those found to be carrying the virus must be removed in order to preserve the benefits derived from removing the Meyer lemon plants. As of December 31, 1959, tests of 1,239 trees have been completed and 363 have been found to be infected.

### **Peach Mosaic**

The peach mosaic suppression work, which is carried on as a federal, state, and county co-operative project, involves the finding and removal of mosaic-infected peach and nectarine trees to prevent spread of the disease. Inspections during 1959 were started on April 20 and were completed on June 30. They included 392,095 peach trees, of which 212,438 were inside the peach mosaic quarantined area and 179,657 were outside. A second inspection was made of 91,627 trees inside the area. An additional 306,103 stone fruit host trees were inspected in nursery sales yards and growing grounds inside the area. There were 314 mosaic trees found and removed. This number approximates the 292 found and removed during the previous season. A summary of the inspections and results is shown in Table 2. In California, peach mosaic has not been found north of the Tehachapi Mountains.

In addition to the inspections for peach mosaic shown in Table 2, inspections for other peach virus diseases, including yellow leaf roll, western X-disease, and yellow bud

mosaic, were made in 10 Central and Northern California counties. They included 3,083,020 peach and nectarine trees on 1,337 properties. No peach mosaic was found.

Personnel of the Fruit Insects Section, Entomology Research Division, Agricultural Research Service, U.S.D.A., in connection with their work on the vector of the peach mosaic virus, made collections of peach buds in 25 locations in Tulare County and another 25 collections in the Auburn-Rio Oso area which includes portions of Placer and Sutter Counties. The vector, *Eriophyes insidiosus*, was not found in these collections.

#### **Peach Yellow Leaf Roll and Western X-Disease of Peach**

The scope and results of the peach yellow leaf roll inspections are shown in Table 3. State and county personnel made tree-to-tree inspections of peaches and nectarines from May 14 through September 15. Only 14 yellow leaf roll infected trees were found and they were on seven infected properties. This was the lowest number of infected trees or properties for any year since the start of the suppression project in 1950. All infected trees were destroyed under the supervision of the agricultural commissioners, usually within 24 hours after their detection. The yellow leaf roll disease never has been found outside of Butte, Placer, Sutter, and Yuba Counties.

Inspections for western X-disease were made concurrently with those for yellow leaf roll. The two diseases are caused by closely related viruses and have certain basic symptoms in common. One hundred fifty-five western X-trees were found in 1959 on 94 infected properties, and 130 were destroyed under supervision of the agricultural commissioners, most of them within 24 hours after their detection. The remaining 25 infected trees are to be destroyed before the start of the 1960 growing season.

The entire commercial peach acreage in Butte, Sutter, and Yuba Counties, and in the Bear River district in Placer County, was inspected at least once. Inspections in Stanislaus County included commercial peach plantings with a previous history of western X-disease and all commercial orchards not inspected since 1955. These inspections completed a second four-year program of examining the entire commercial peach acreage in Stanislaus County. Merced County inspections were limited to those portions of six large plantings where western X-disease

had been found in previous years. In Tehama County, the inspections included the entire commercial peach acreage of the Antelope, Bend, and Jelly districts.

In Butte, Sutter, and Yuba Counties, re-inspections were made of properties where yellow leaf roll was found during 1959 or within the previous three years. Reinspections were made also of properties on which western X-disease was found in 1959, or where the incidence of this disease had been high within the last three years.

#### **Peach Yellow Bud Mosaic**

The state-county co-operative peach yellow bud mosaic inspections started April 9, and were completed on May 27. The scope and results of the inspections are shown in Table 4.

In Butte County, inspections were limited to the Gridley district. They included three previously infected properties and all commercial peach plantings not hitherto inspected for yellow bud mosaic. In addition, the one-quarter-mile environs of nursery growing grounds were examined, regardless of previous inspections. The Napa County inspections were limited to a previously infected property and its immediate environs in the quarantined area north of the City of Napa. In Placer County, the inspections were confined largely to the one-quarter-mile environs of nurseries and nursery growing grounds.

The San Bernardino County inspections were confined to the Cucamonga and Lytle Creek districts where the disease previously was known to occur. In Solano County, inspections were limited to a previously infected experimental planting. In Sutter County, inspections were continued in the Live Oak-Yuba City district and they included the only known infected property and its immediate environs. The Tehama County inspections covered all commercial peach acreage in the Antelope district and all commercial plantings in other districts except those inspected for yellow bud mosaic in previous year. Several commercial plantings examined in 1958 were reinspected in 1959 because inspection conditions during 1958 were unfavorable for detection of the disease. Three of the six properties on which yellow bud mosaic was found in 1959 were outside of the quarantined area.

The Yolo County inspections were limited to a previously infected experimental planting near Davis and a property located

outside of the quarantined area north of Winters.

In Yuba County, inspections were continued in District 10 on properties not hitherto inspected for the disease.

#### **Branched Broomrape and Chestnut Blight**

(See Plant Disease Detection.)

### **METHODOLOGY FOR NURSERY STOCK CERTIFICATION \***

Work directed toward developing methods for certifying nursery stocks for freedom from detrimental viruses was conducted on cherries, almonds, peaches and nectarines, plums and prunes, apricots, grapes, pears, apples and quinces. Activities involved co-operation with the United States Department of Agriculture, the University of California Agricultural Experiment Station and Extension Service, the California Department of Agriculture Bureau of Nursery Service and county agricultural commissioners. Three isolated field plots were continued and one new one was established. These plots serve as field laboratories for the purpose of carrying on work relative to the identification and spread of viruses and the development of methods of indexing propagating sources for freedom from viruses. Greenhouse facilities also are used where necessary.

#### **Cherries**

Close attention was given to the nursery row and propagating source plantings now in California's program for the registration and certification of cherry trees in order to detect any problems which might be arising. Visual inspections made of all of the trees, and index tests for latent prunus ring spot viruses made of the mother block and seed source trees, have not revealed the presence of viruses. Approximately 7,700 "California Certified Cherry Trees" were grown and harvested, and, for the first time, made available for marketing during the 1959-60 season.

#### **Almonds**

The inspection of scion and budwood source plantings of almonds included 8,415 tree examinations on 19 properties; 157 trees were found unfit for propagating use. Diseases encountered were prunus ring spot,

\* For this project state funds were matched with federal funds received from the Agricultural Marketing Service, U.S.D.A., under provisions of the Agricultural Marketing Act of 1946.

almond bud failure, corky spot, a previously reported disorder of Jordanolo almond of unknown cause and characterized by a chlorosis and malformation of the leaves, and a leaf spotting disorder of undetermined cause.

#### **Peaches and Nectarines**

Work with peaches and nectarines included the starting of two-year index tests on 35 selected candidate trees for the development of a program for the registration and certification of these commodities. Twenty-one varieties, including leading varieties used by the peach industry of California, were included in the tests which were started on eight "guinea pig" or indicator host varieties. Members of the University of California Agricultural Experiment Station are propagating progeny of the trees being tested. These progeny trees will provide the initial registered stock for the proposed peach and nectarine program, if the index tests indicate their freedom from detrimental viruses.

Inspections of peach and nectarine propagating sources involved 51,602 tree examinations on 55 separate properties, with 781 trees being marked as unfit for propagating use. Included in the inspections were three properties with 1,056 trees maintained specifically to produce seed for growing rootstocks. Diseases encountered were yellow bud mosaic, peach necrotic leaf spot, prunus ring spot, stubby twig, peach blotch, peach variegation, peach stunt, mule's ear, and an unfruitful condition of undetermined cause.

In the search for peach and nectarine source trees free of detrimental viruses, emphasis was placed upon correlating the results of prunus ring spot tests on Shirofugen with those of visual inspections. This work involved the inspection and indexing of 2,207 peach and nectarine budwood and rootstock seed source trees. Investigative work conducted on seed and pollen transmission of peach and nectarine viruses included the inspection of approximately 7,150 seedling trees, 1,068 of which were tested on Shirofugen flowering cherry.

#### **Plums and Prunes**

Visual inspections were made of 8,013 plum and prune trees including seed and rootstock cutting sources on 37 properties, and 111 trees were regarded as unfit for propagating use. Diseases encountered were diamond canker and a leaf spot of undetermined cause.



## Apricots

Visual examinations were made of 2,371 apricot trees on 14 properties. Eighty-eight trees were tested on Shiro-fugen for latent prunus ring spot viruses. Diseases encountered included prunus ring spot and a leaf spotting disorder of undetermined cause but which is graft-perpetuated.

## Grapes

Close attention was given to grape plantings involved in California's program for the registration and certification of grapevines. This work and the inspection of source plantings of varieties not presently entered in the program included 197,515 grapevine examinations on 30 properties. Diseases encountered were leafroll, yellow vein, yellow mosaic, Pierce's disease and fanleaf. The discovery of leafroll virus in the foundation blocks during the late summer created a serious problem. The sudden and unexpected occurrence of this virus in these plantings pointed out the need of revising some of the procedures now being followed so as to give greater assurance that this and other viruses can be avoided.

## Pears

Investigations with pears included 94,727 tree examinations (including growing nursery trees) on 25 properties, and 459 budwood source trees were rejected as unfit for propagating use. Disorders encountered were stony pit, vein yellows, two conditions characterized by rough bark, and "pear collapse." (Pear collapse is a new disorder that suddenly occurred in various pear growing areas in Northern California and is described briefly in this report under Plant Disease Detection.)

## Apples and Quinces

Preliminary work on the inspection of apple and quince propagating sources was initiated this year. This work included the inspection of 8,714 growing nursery trees and 1,619 budwood source trees, 33 of which were rejected.

## GENERAL PLANT PATHOLOGY

There were 3,792 specimens received in the general plant pathology laboratories during the year. The Sacramento laboratory examined 3,292 of them and the Riverside laboratory 500. Included in the total are 219 specimens intercepted at border stations by

inspectors of the Bureau of Plant Quarantine, 467 collected in 43 counties by bureau plant disease detection personnel, and 395 originating in nursery stock or on nursery properties.

Laboratory findings which revealed conditions of more than usual interest included:

- Rust, *Gymnosporangium libocedri* (P. Henn.) Kern, on pear leaves in a central coastal county. This disease is not common on pears.
- Rust, *Phragmidium rubi-idaei* (DC) Karst., on leaves and ripe berries of red raspberry, *Rubus* sp. This disease is not common on the fruit.

Diseases not new or uncommon but which may be serious or troublesome and which were found in nursery stock included:

- Hairy root, caused by *Agrobacterium rhizogenes* (Riker et al.) Conn, on 10 percent of the rose plants in a 32-acre planting.
- Sclerotium rolfsii* Sacc. in an iris producing nursery.
- Armillaria mellea* Vahl. ex. Fr. infecting rhododendrons in planter boxes, probably introduced with oak leaf mold.
- Gall rust, caused by *Cronartium* sp., on young pine trees.
- Dodder, *Cuscuta* sp., on chrysanthemum cuttings in nursery flats.
- Yellow vein mosaic on rooted grape cuttings in several propagating nurseries.
- Rough bark virus on pittosporum plants.
- Cypress canker, caused by *Coryneum cardinale* Wagener, on Monterey cypress.

Following are tabulations of laboratory specimens based on the type of host plant and the causal factor involved. In some instances a specimen was found to be affected by more than one causal factor.

Crop category	Number of specimens
Tree fruits, nuts, grapes	1,301
Vegetables	452
Flowers and herbaceous ornamentals	304
Ornamental shrubs and vines	737
Small fruits	106
Forest and shade trees	456
Cereal, forage and field crops	168
Miscellaneous (soil, turf, weeds, etc.)	268
Total	3,792
Causal factor	Number of instances
Fungi	1,406
Bacteria	223
Viruses	125
Parasitic flowering plants	8
Disease or condition not caused by an organism	1,493
Disease-free or negative for specified examination	480
Referred to other bureaus or agencies (insects, chemicals, etc.)	41
Undetermined	41
Total	3,817



## PLANT NEMATOLOGY

There were 6,546 specimens of plant and soil material examined for plant parasitic nematodes during the year. Comparison of this figure with the 4,543 specimens examined in 1958 and the 2,471 examined in 1957 reflects the continued increase in the attention being given to these minute organisms as pests of economic plants.

The number of counties operating nematology laboratory facilities increased by 10 during the year, and the volume of county-processed specimens increased from 1,869 in 1958 to 4,323 in 1959. Twenty-nine counties submitted all or part of their samples in processed form, and these accounted for two-thirds of the samples received for examination. Disease detection personnel collected 479 of the specimens during surveys for diseases of walnuts, pears, rice, and various vegetable crops.

Plant nematologists of the bureau spent 15 days giving training and assistance to county laboratories and approximately 13 days in training county personnel in nematode separation techniques and nematode recognition in the Sacramento laboratory.

Bureau personnel conducted or assisted in several special projects during the year. These included the following:

The survey for the potato rot nematode, *Ditylenchus destructor* Thorne, in dahlia and bulbous iris, begun during 1958, was completed early in 1959. Samples were collected in 21 counties by the Bureau of Nursery Service and the county agricultural

commissioners. The nematode was found in two dahlia nurseries and in two commercial iris plantings in the State, and in one shipment of iris bulbs from Europe.

After the strawberry spring dwarf nematode, *Aphelenchoides fragariae* (Ritzema Bos) Christie, was found in some shipments of California-grown strawberry nursery stock, a survey was made in commercial plantings to determine the distribution of this nematode and to evaluate its economic importance. Composite strawberry plant bud samples were collected from 72 plantings in 11 counties, and 30 of them from eight counties contained spring dwarf nematodes.

A survey of Easter lily nurseries in Del Norte County revealed the presence of both *Aphelenchoides fragariae* (Ritzema Bos) Christie and *Aphelenchoides ritzemabosi* (Schwartz) Steiner as foliar parasites in some plantings.

Following is a list of the kinds of host plants represented by nematode samples received for laboratory examination:

Crop category	Number of specimens
Tree fruits, nuts, and grapes .....	1,928
Vegetables .....	583
Flowers and herbaceous ornamentals.....	1,171
Ornamental shrubs and vines.....	814
Small fruits .....	1,047
Forest and shade trees .....	179
Cereal, forage and field crops.....	98
Soils .....	522
Miscellaneous (turf, weeds, seeds, etc.)....	204
Total .....	6,546

TABLE 1  
Plant Disease Detection Inspections in 1959

Crop or host plant inspected	Counties	Properties or locations	Crop acres	Trees
Celery .....	7	45	843	—
Chestnut .....	11	76	191	7,643
Corn .....	29	429	26,311	—
Crucifers .....	10	43	1,432	—
Elm .....	23	148	—	12,518
Lettuce .....	11	85	3,015	—
Peach .....	5	178	1,712	148,671
Pear .....	18	164	6,057	666,218
Rhododendron .....	11	61	—	—
Rice .....	15	181	48,992	—
Tomato .....	21	320	18,430	—
Walnut .....	26	253	9,085	175,525
Postentry items .....	22	97	—	—
Totals .....	—	2,070	116,068	—

TABLE 2<sup>1</sup>

## Summary, by Counties, of Peach Mosaic Inspections in 1959

County	Inspected		Infected with mosaic		
	Properties	Trees	New properties	Total properties <sup>2</sup>	New cases (trees)
Fresno	59	40,342	—	—	—
Kern	18	33,690	—	—	—
Kings	36	30,217	—	—	—
Los Angeles	126	29,066	—	1	1
Orange	33	1,543	—	—	—
Placer	12	3,326	—	—	—
Riverside	2,525	105,740	13	102	199
San Bernardino	2,756	87,937	8	53	104
San Diego	103	19,138	2	5	10
Tulare	53	41,096	—	—	—
Total	5,721	392,095	23	161 <sup>2</sup>	314

<sup>1</sup> Figures compiled by U. S. Department of Agriculture.<sup>2</sup> Includes properties on which peach mosaic was found in previous years and having new tree cases in 1959.

TABLE 3

## Summary by Counties of Inspections for Peach Yellow Leaf Roll and Western X-disease in 1959

County	Inspected		Infected					
	Properties	Trees	Yellow leaf roll		Western X-disease			
			Properties	Trees	Properties	Trees	Properties	Trees
			New	Total <sup>1</sup>	New cases		New	Total <sup>1</sup>
Butte	190	365,072	1	2	7	3	16	26
Merced	6	41,645	0	0	0	0	0	0
Placer	4	33,907	0	0	0	0	1	1
Stanislaus	169	429,781	0	0	0	5	7	12
Sutter	711	1,584,307	1	4	5	13	54	85
Tehama	17	26,356	0	0	0	1	3	13
Yuba	164	538,812	0	1	2	0	13	18
Totals	1,261	3,019,880	2	7 <sup>1</sup>	14	22	94 <sup>1</sup>	155

<sup>1</sup> Includes properties infected in previous years and having new tree cases in 1959.

TABLE 4

## Summary by Counties of Peach Yellow Bud Mosaic Inspections for 1959

County	Inspected		Infected with Yellow Bud Mosaic		
	Properties	Trees	New properties	Total properties <sup>1</sup>	New cases (trees)
Butte	52	78,986	0	1	31
Napa	2	230	0	0	0
Placer	42	11,127	0	1	1
San Bernardino	123	6,631	0	3	5
Solano	1	2,054	0	1	5
Sutter	42	90,163	0	1	7
Tehama	57	72,653 <sup>2</sup>	4	6	87
Yolo	2	2,983 <sup>2</sup>	0	0	0
Yuba	20	62,778	0	0	0
Totals	341	327,605	4	13	136

<sup>1</sup> Includes some properties infected in previous years and having new tree cases in 1959.<sup>2</sup> Includes trees in close-planted nursery rows.

# Bureau of Plant Quarantine

E. A. BREECH, *Chief*

O. A. VAUGHAN, *Assistant Chief*

## Administration-Quarantine Laws and Regulations

The primary objective of the Bureau of Plant Quarantine is to prevent the introduction into or the spread of pests within the State. In order to accomplish this purpose, the Director of Agriculture has established 22 exterior quarantines against pests in other states, and 16 interior quarantines against pests of limited distribution in California. In addition, there are 12 federal-domestic quarantines against pests of limited distribution in the United States. Eighteen federal-foreign regulations have been enacted and are enforced against pests in foreign countries. Six federal quarantines are in effect against pests in United States' offshore possessions. These federal quarantines were established by the Secretary of Agriculture under federal law. The state interior and exterior quarantines were established by the director under authority provided in the Agricultural Code.

For the purpose of administration and control, the work of the Bureau of Plant Quarantine has four categories: (1) administration, which has to do with the overall direction, planning, and administration of quarantine laws and regulations; (2) border inspection, which is concerned with vehicular traffic entering the State by highways; (3) maritime inspection, which is concerned with the inspection of ships and airplanes; and (4) interior inspection, which is concerned with the inspection of freight, express, parcel post, and truck shipments arriving at interior points. This latter phase of the work is performed by the county agricultural commissioners and their staffs, under the supervision of the department.

## Changes in Quarantine Regulations

The Walnut Pests Exterior Quarantine was amended to delete the walnut husk fly species occurring in California, from the list of pests quarantined against.

The European Corn Borer Exterior Quarantine was amended to exempt shelled popcorn and seed for planting from the certi-

cation requirements if free from portions of cobs, stalks, and other contamination.

The Cotton Pests Exterior Quarantine was amended to: (1) adopt the presently accepted common name "boll weevil" and omit varieties thereof; (2) exempt the southern portion of Nevada from the area under quarantine; (3) remove restrictions on the entry of compressed baled lint, linters, and lint cleaner waste, trade samples of lint and linters, secondhand rags, automobiles, baggage, personal effects, emigrant moveables, used household effects, and camping equipment; (4) prescribe treatment procedures for treating all regulated articles; (5) authorize inspectors to inspect and pass, or treat and release, small lots or shipments of restricted products.

The Citrus Pests Exterior Quarantine was amended to delete the requirement of annual surveys for the possible presence of citrus canker in other states as a condition of admitting citrus fruits under permit. Master permits issued to the States of Florida and Texas, admitting citrus fruits, were revised to delete the requirement of fumigation at origin for surface pests if cleaned and otherwise prepared and handled in a bona fide commercial packing house.

The Cherry Fruit Fly Exterior Quarantine was amended to designate the entire State of Idaho as infested area.

The Walnut Husk Fly Interior Quarantine was repealed, effective May 31, 1959.

The Peach Mosaic Disease Interior Quarantine was amended to place quarantine lines around a small area in Antelope Valley in Los Angeles County, and to authorize agricultural commissioners in quarantine counties to issue certificates allowing reshipments, to points outside of the area under quarantine, of dormant host trees obtained from sources in other states or from counties or portions of counties in California not under quarantine.

The Grapeleaf Skeletonizer Interior Quarantine was amended to move a portion of the west quarantine boundary line eastward

for a distance of one mile in the vicinity of Escondido.

The Yellow Leaf Roll of Peach Interior Quarantine was amended to allow the issuance of permits for the taking of budwood or cuttings from nursery row trees which are eligible for certification as nursery trees.

The list of Khapra beetle infested properties, supplementing the Khapra Beetle Interior Quarantine was amended seven times. Two newly infested properties were added, nine properties were deleted, and two properties were relisted. The list of Khapra beetle infested properties was repealed on August 25, 1959. A list designating three infested properties was adopted on December 18, 1959.

The list of approved mills and establishments, issued supplemental to the regulation titled "Dissemination of Weed Pests Through the Movement of Feed Grain," was amended 15 times in order to add, delete, or otherwise revise listings of approved mills. The list of counties which have indicated they will accept certificates of cleanliness was revised to add Nevada County.

A regulation governing the handling and disposal of seed screenings and cleanings was adopted as Section 3557, Title 3, California Administrative Code, effective on October 2, 1959. This regulation replaced Sections 3800 to 3805 in Title 3, California Administrative Code, relating to seed screenings, formerly enforced by the Bureau of Rodent and Weed Control and Seed Inspection. A list of approved processing mills and establishments issued on October 9, 1959, was twice amended to add or delete or revise the listings.

#### **Border Inspection Service**

Border inspection stations are located on all major highways entering the State. There are six along the northern border—Alturas, Tullake, Dorris, Hornbrook, Redwood Highway, and Smith River; six are located along the southern border—Yermo, Daggett, Vidal, Blythe, Winterhaven, and Twenty-nine Palms; and six eastern border stations are—Long Valley, Truckee, Meyers, Woodfords, Topaz, and Benton.

The primary objective of the border stations is to prevent the entry of pests detrimental to the agriculture of the State. Each vehicle entering the State through border stations is required to undergo inspection to determine that quarantined fruits, plants,

plant products, or other restricted items are excluded. The type of inspection given each vehicle is based on the pest hazard presented.

Border stations continue to record increases in both automobile and commercial trucks inspected over previous years. The exception was a slight decrease in produce trucks. A total of 115,575 produce trucks were inspected to determine compliance with fruit and vegetable standardization laws, which is a decrease of 558 as compared to 1958. Of this total, 85,159 were outbound; 30,416 were bringing produce into the State. As compared to 1958, this represents a decrease of 4,092 inbound, and an increase of 3,534 outbound.

A total of 4,711,648 cars were inspected in 1959, compared with 4,302,826 in 1958. Commercial trucks inspected in 1959 totaled 406,197 as compared to 383,543 in 1958. There were 47,401 buses inspected, a decrease of 1,000 when compared to the total inspected in 1958. There was an increase of 304,478 in the number of cars with California licenses. The out-of-state licensed cars increased 104,344. A total of 13,428,890 passengers entered the State in 1959 through border stations in all types of vehicles, representing an increase of 1,386,346 over 1958. Ninety thousand two hundred twenty-eight lots of plant material were intercepted for violation of provisions of the Agricultural Code. Inspection of this material resulted in the finding of 24,216 lots of pests which consisted of 14,003 lots of insects, 8,745 lots of diseases, and 1,468 lots of noxious weed seeds.

The following list shows some of the more important pests intercepted and the number of times each was taken in 1959: Cotton boll weevil, 24; pink bollworm, 5; citrus white fly, 27; Japanese beetle, 1; Mexican fruit fly, 1; sweet potato weevil, 4; plum curculio, 110; European corn borer, 35; Colorado potato beetle, 2; apple maggot, 328; pickleworm, 1; pecan shuckworm, 123; sugarcane borer, 2; walnut husk fly, 58; Canada thistle, 213; quackgrass, 15; white horse nettle, 102; hoary cress, 6; yellow star thistle, 9; wild morning-glory, 10; perennial pepper cress, 1; and Carolina horse nettle, 2.

Many pests not the subject of specific quarantine restrictions would prove detrimental to the agricultural industry of the State should they become established here. Some of the more important of these, intercepted at border stations, were: Yanone scale, lesser snow scale, plum gouger, coco-

nut scale, Forbes scale, Harvard scale, squash vine borer, and sweet potato leaf beetle.

The volume of feed grain entering this State by truck through border inspection stations in 1959 showed a decrease of 91,286 tons as compared to 1958. A total of 449,682 tons were inspected, of which 22,112 tons were corn; 184,501 tons milo; 189,544 tons wheat; 29,952 tons barley; 18,592 tons oats; and 4,981 tons of other grains.

The bureau's construction program consisted of a new freeway inspection station at Truckee. It was completed and became operative on January 1, 1960. All preliminary plans are completed for the new stations at Blythe and Twentynine Palms. It is expected that bids will be called for construction of both in the near future.

### Maritime Inspection

Quarantine stations are maintained at maritime ports primarily for the inspection of ships and their stores, quarters, and cargoes from any origin outside of the State of California, and planes from outside of the continental United States. As collaborators of the Plant Quarantine Division of the Federal Department of Agriculture, all maritime inspectors enforce all federal, foreign, and domestic quarantines as well as those directed against pests in United States offshore possessions. They also enforce California interstate quarantines as they apply to plant material encountered. State personnel staff the major ports of San Diego, San Pedro, and San Francisco. Arrivals at the Ports of Crescent City, Eureka, Stockton, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Hueneme are inspected by those county agricultural commissioners having jurisdiction at the port concerned.

At all California ports, 10,128 vessels were inspected, of which 4,629 were found to be carrying material in violation of quarantines.

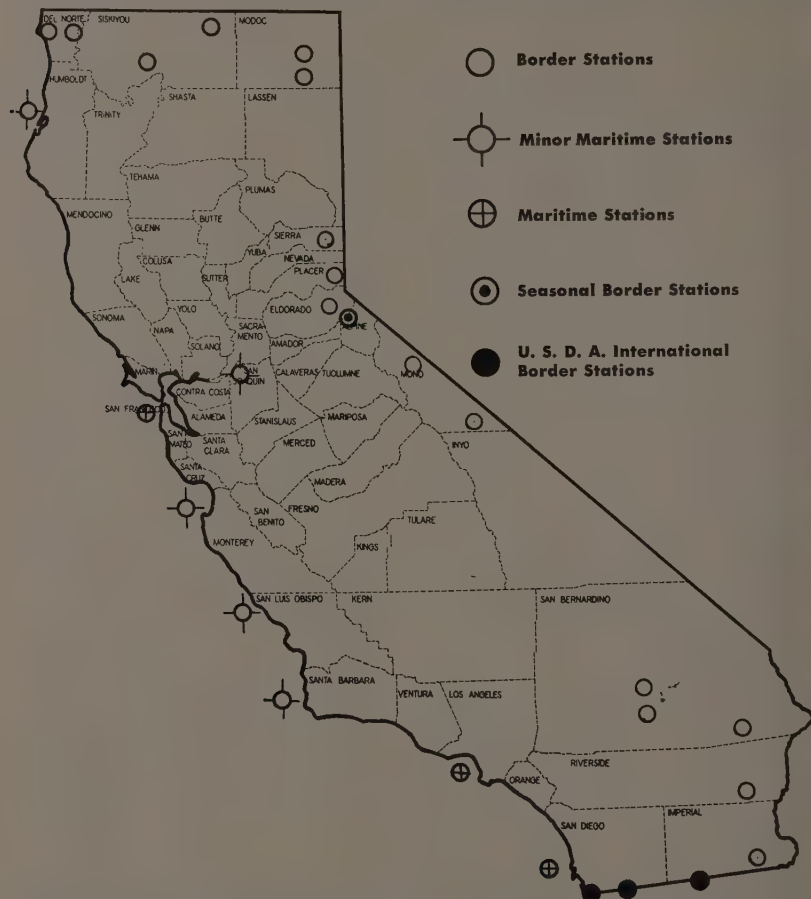
Planes from foreign countries and Hawaii were inspected 4,897 times, which is an increase of 313 over the previous year; 2,407 of them carried prohibited material. There were 8,790 overseas airplanes cleared in Hawaii by federal inspectors, eliminating the necessity for inspection in California, thus effecting a tremendous saving in time and money to the bureau. Ships and planes carried 32,410 lots of restricted plant material which was refused entry. Shipments treated as a condition of entry, or because of the presence of pests, totaled 3,194. There were 180,082 packages of plant material in air cargo inspected from foreign countries and 20,011 lots of pests were intercepted, of which 16,669 were from outside the United States, and 3,342 from other states. Some of the more important pests found were: From Hawaii—Mediterranean fruitfly, five times; melonfly, three; Oriental fruitfly, nine; fruitfly eggs, one; bean butterfly, 10; bean pod borer, three; burrowing nematode, seven; green coffee scale, 16; mango seed weevil, 18; pink bollworm, one. From foreign countries—fruitflies were taken 67 times, including the Mediterranean fruitfly, one time; Oriental fruitfly, one; and the European cherry fruitfly, two; the avocado seed moth, two; camphor scale, 25; citrus whiteflies, five; pickleworm, two; false codling moth, one; yanone scale, 120; black parlatoria scale, 24; citrus canker, 22; cancrrosis B., one; sweet orange scab, 20; golden nematode, four; citrus black spot, 48; giant African snail, one. From other states—citrus whitefly, six; pickleworm, one; peach tree borer, one.



New Truckee inspection station on new freeway  $\frac{3}{4}$  of a mile west of Truckee, California. This station was opened in time to handle the increased traffic during the Winter Olympic Games at Squaw Valley.



## QUARANTINE STATIONS PROTECTING CALIFORNIA'S AGRICULTURE



For the first time, fruit from a foreign country, given a cold treatment of 35° F. for 17 days in transit, was imported at California ports. The treatment has been approved by the U.S. Department of Agriculture as adequate to kill all stages of Mediterranean fruitflies. Six thousand four hundred fifty boxes of intransit, cold-treated apples and pears from Argentina were imported and released after inspection.

More than 10,000 federal sanitary export certificates were issued at the request of exporters to accompany that many shipments of 7,589,165 containers of fruits, vegetables, and plants to foreign countries. Over

3,100 reports of foreign meat and animals carried on ships and planes were made to the Division of Animal Industry, and the U.S. Animal Inspection and Quarantine Division. Permits to remove food stores from ships were issued 431 times.

Garbage retained aboard or taken off ships and planes for disposal is handled under the supervision of plant quarantine personnel to determine compliance with the State Garbage Law. This law is designed to prevent the introduction of animal or plant pests, such as foot-and-mouth disease in bone or meat scraps, and fruitflies in discarded fruit.

# **INTERIOR INSPECTIONS**

This report is compiled and presented for the purpose of showing quarantine workload by various counties on a comparative basis.

County	Interstate				Intrastate			
	Shipments passed	Plants or units passed	Shipments rejected	Plants or units rejected	Shipments passed	Plants or units passed	Shipments rejected	Plants or units rejected
Alameda	15,802	1,169,249	182	21,216	3,146	10,679,427	1	1
Amador	457	15,631	7	14	101	7,420	1	6
Butte	2,639	272,957	65	2,697	1,347	5,345,965	79	758
Calaveras	460	10,353	—	—	130	25,263	—	—
Colusa	168	1,955	—	—	287	180,330	132	2,395
Contra Costa	6,902	759,446	111	380	2,100	613,681	3	272
Del Norte	887	85,919	37	337	287	25,518	1	1
El Dorado	1,063	27,943	3	4	121	13,675	—	—
Fresno	3,999	258,128	71	121	5,950	2,029,570	137	985
Glenn	482	21,872	466	18	484	142,360	39	2,213
Humboldt	3,449	234,173	22	327	1,376	311,133	5	614
Imperial	4,929	255,972	102	5,667	400	47,521	11	352
Kern	4,541	1,662,075	44	399	2,716	2,608,099	6	14
Kings	645	17,133	67	72	1,069	222,552	62	258
Lake	736	42,562	3	18	206	62,964	7	34
Lassen	656	13,740	1	1	63	2,507	—	—
Los Angeles (Co.)	88,676	6,114,164	2,368	78,389	9,771	21,859,946	192	19,327
* San Pedro (Sta.)	988	45,006	1,327	7,435	—	—	—	—
Madera	580	21,120	3	127	868	319,910	14	317
Marin	2,999	175,313	12	127	784	241,544	1	300
Mendocino	1,999	71,204	17	7,547	745	63,860	3	302
Merced	4,073	265,971	23	2,935	938	1,947,744	17	1,969
Modoc	545	24,057	4	13	80	31,220	—	—
Monterey	2,289	292,955	113	197	1,257	16,391,438	8	100
Napa	1,286	108,076	9	38	1,425	350,141	5	60
Nevada	369	6,746	—	—	143	13,380	—	—
Orange	7,161	276,439	66	1,547	3,866	18,424,402	12	415,013
Placer	1,712	955,458	3	746	844	420,365	4	166
Plumas	543	9,732	2	27	94	1,231	—	—
Riverside	9,819	6,766,101	113	10,903	3,310	5,260,009	49	25,405
Sacramento	11,838	1,147,308	137	9,700	4,681	30,871,901	10	496
San Benito	220	16,412	—	—	103	1,525,231	—	—
San Bernardino	9,139	367,490	416	3,388	2,188	1,104,762	22	941
San Diego (Co.)	16,206	977,732	178	2,797	3,323	945,368	9	193
* San Diego (Sta.)	288	677,428	15	20	—	—	—	—
San Francisco (Co.)	158	349,515	3	291	1,843	142,319	11	16
* San Francisco (Sta.)	79,756	9,148,761	181	290	—	—	—	—
San Joaquin	7,792	470,542	759	137,266	16,454	57,815,186	697	305,332
San Luis Obispo	1,810	37,379	8	—	1,676	22,340,541	—	2
San Mateo	6,126	6,645,462	59	22,004	6,324	2,351,100	13	1,066
Santa Barbara	2,948	191,092	30	238	2,524	8,098,352	6	959
Santa Clara	8,862	1,650,530	227	2,825	3,819	41,470,992	32	695
Santa Cruz	2,273	620,212	21	1,606	1,277	14,504,025	6	413
Shasta	3,999	1,012,144	15	383	267	83,606	—	—
Siskiyou	2,534	201,316	41	185	168	24,388	58	—
Solano	4,590	118,945	52	247	992	16,908,880	—	—
Sonoma	5,257	347,219	69	13	1,187	220,614	37	2,824
Stanislaus	3,955	228,919	36	42,875	6,981	2,507,835	214	814
Sutter	653	97,429	52	685	989	17,134,284	139	3,124
Tehama	1,263	40,901	10	226	462	100,190	—	—
Tulare	2,030	72,598	5	113	3,200	1,850,109	6	812
Yuba	377	9,208	—	—	198	38,415	—	—
Ventura	3,171	3,014,268	32	942	9,793	15,545,443	94	2,436
Yolo	789	96,198	—	—	1,021	50,397,746	—	—
Yuba	477	32,991	9	537	544	1,859,420	5	957
Totals	345,365	47,553,449	7,596	367,933	113,922	375,483,882	2,148	791,970

# Bureau of Nursery Service

WRAY F. HILTBRAND, Chief

STANLEY M. MATHER, Assistant Chief

The Bureau of Nursery Service co-ordinates and supervises the enforcement of nursery inspection and nursery stock grades and standards laws by county agricultural commissioners, administers optional programs for the registration and certification of plants inspected and tested for virus diseases and other pests, and licenses the sale of nursery stock in California. The bureau is self-supporting through fees for licenses and certification services rendered.

Plant pest inspections in nurseries are made by county agricultural commissioners for the detection of pests new to the State, or of limited distribution here, and to determine compliance with State standards of pest cleanliness.

Commissioners reported 7,873 inspections of entire nurseries plus 3,585 partial or re-inspections. In addition inspections were made for specific plant pests in 937 nurseries. A total of 6,281 man-days required for all these inspections was reported by counties.

Inspections for virus diseases and virus-like disorders were made in approximately 885 acres of stone fruit and grape nursery stock in the growing grounds of 84 nurseries. Symptoms of nine different virus diseases and virus-like disorders were found. Yearling Wickson plum trees found showing symptoms of apricot ring pox virus in two nurseries were required to be rogued. Grape nursery stock found showing symptoms of fanleaf, yellow mosaic and yellow vein viruses were also required to be rogued from nurseries. These inspections, made annually since 1951, show a reduction in the number of infested plants each year. Continued improvement is apparent in vigor, size and stands. Inspection and indexing of propagating sources by the Bureau of Plant Pathology, nursery inspection by commissioners, and the participation by nurserymen in registration and certification programs are resulting in cleaner nursery stock.

In the late fall, bare root nursery stock was harvested rapidly following a slow start due to late dormancy. As in previous years,

substantial losses from crown gall and root infesting nematodes were experienced by nurserymen. Crown gall is the major pest problem in deciduous fruit tree production. Infections ranging to 95 percent of the trees in some growing grounds were found.

Progress was made toward solving the nematode problem on deciduous stock for farm planting through development of a plan of supervised soil fumigation prior to planting. The plan was recommended by a nematode study committee comprised of representatives of the nursery and chemical industries, the University of California, county agricultural commissioners and the department. It is anticipated that adoption of the recommended procedures will result in the freer movement of plant shipments with fewer delays for inspection and fewer rejections of nematode infected stock.

Strawberry nursery stock planted in the State totaled approximately 650 acres compared to 500 acres in the previous year. Inspections of this acreage were made for nematodes. Since the spring dwarf nematode, *Aphelenchoides fragariae* had been found in several nurseries the previous season, all planting stocks were examined using laboratory methods for the detection of the pest, prior to planting in nurseries. Over one-half million of these plants were dipped in hot water at 121° F. for seven minutes to eliminate any spring dwarf nematode present. The plants treated were harvested during the period of maximum dormancy and held in cold storage prior to treatment. This handling resulted in little or no plant mortality in either the Shasta or Lassen varieties treated.

The spring dwarf nematode was not found in strawberry nurseries during the growing season. It was found, after harvest, in shipments made by two small nurseries where the planting stocks used had not been hot water treated in an approved manner under supervision. Lesion and root knot nematodes were found in approximately 56 acres in 6 nurseries by laboratory examination of root samples prior to harvest. Nurserymen had

expanded their acreage to meet an increased demand for plants and in some instances there was insufficient time to fumigate the land before planting. No evidence of the red stele fungus, *Phytophthora fragariae*, was found in strawberry nurseries and there was little difficulty with other diseases or insect pests.

Approximately 300,000,000 field-grown tomato plants were shipped from 1,500 acres grown in Riverside, Ventura, Kern and Monterey Counties. Careful inspections made by commissioners at origin prevented the shipment of plants infested with root knot nematodes. Methyl bromide fumigation of fields where tomato transplants are grown in Coachella Valley has succeeded in reducing competition from weeds and in eliminating root infesting organisms.

Intensive surveys were made of the 300 acres of Easter lily plantings in Humboldt and Del Norte Counties to detect fleck, a serious virus disease of lilies. The disease was maintained at a low level through roguing of infected plants by growers.

European rhododendron rust, *Chrysomyxa ledi* var. *rhododendroni* was found for the first time in California on rhododendrons in four nurseries in Marin, Mendocino and San Francisco Counties. Control of the disease by spraying and by picking off infected leaves is being required in the nurseries. This fungus attacks rhododendrons and spruce in Europe and has been reported on rhododendrons in North America, in Canada, Washington and Oregon.

Special surveys were made to determine the distribution of the Cuban laurel thrips, *Gynaikothrips uzeli*, the maple mite, *Oligonychus aceris*, and an aphid, *Vesiculaphis caricis*, which were found for the first time in nurseries in California. Widely separated infestations of the Cuban laurel thrips and the maple mite were found and controlled. The single infestation of *Vesiculaphis caricis* found on azaleas in Calaveras County was eradicated. Inspections were continued for the potato rot nematode *Ditylenchus destructor* in dahlia tubers and bulbous iris and several infestations were found, indicating a wide distribution from importations over a long period from infested sources outside the State.

Prompt action was taken to eradicate or restrict movement of nursery stock carrying serious pests to prevent establishment or spread to other areas. Fifty-three infestations of 14 different pests subject to eradi-

cation measures were found in nurseries in 18 counties:

*Asterolecanium arabidis*, *Pittosporum* pit making scale, Alameda 2, Butte 2, Contra Costa 1, Lake 4, Marin 2, Napa 1, Sacramento 1, San Mateo 1, Santa Clara 5, Santa Cruz 1, Solano 2, Sonoma 5;

*Asterolecanium epidendri*, a scale insect, Los Angeles 1;

*Aclerda* sp. a scale insect, Los Angeles 6;

*Ferrisia virgata*, a striped mealybug, Riverside 2;

*Genaparlatoria pseudaspidotus*, an armored scale, Los Angeles 1;

*Gymnaspid aechmeae*, a scale insect, Solano 1;

*Hemiberlesia palmarum*, a scale insect, Los Angeles 2;

*Leucaspis cockerelli*, Cockerell's scale, San Mateo 1;

*Parlatoria pittospori*, *Pittosporum* diaspidid scale, San Diego 1;

*Parlatoria proteus*, a scale insect, Los Angeles 1;

*Pseudantonina arundinariae*, a mealybug, Los Angeles 6;

*Pseudoparlatoria parlatorioides*, parlatoria-like scale, Orange 1;

*Vesiculaphis caricis*, an aphid, Calaveras 1;

Apricot ring pox, a virus, Los Angeles 1, Placer 1.

Intensive control of olive scale, *Parlatoria oleae*, is required when found on nursery stock. Fifty infestations of olive scale were reported in 13 counties. A fumigation job of unusual proportions was required when approximately 300,000 deciduous fruit and ornamental shade trees were found generally infested with this scale in the growing ground of one nursery.

Noxious weed pests found in nurseries included:

Canada thistle in Alameda, Del Norte, Humboldt, Plumas and Sonoma Counties;

Carolina horsenettle in Orange County;

Gaura in Santa Barbara County;

False garlic in Alameda County;

Quackgrass in Alameda, Contra Costa, Del Norte, Marin, San Mateo, San Francisco, Santa Barbara, Santa Clara, Solano and Sonoma Counties;

Russian knapweed in Santa Barbara County;

White horsenettle in Alameda, Santa Barbara and Solano Counties.

#### Intercounty Nursery Stock Certificates

The intercounty nursery stock certificate (pinto tag) program permits the movement

of nursery stock within the State without inspection at destination. Participation is voluntary for both nurserymen and commissioners. Nurseries meeting the strict requirements of pest cleanliness may use the certificates on shipments of nursery stock to 56 of the 58 counties within California. There are now 840 firms operating in 1,050 locations using the certificates. The program, in effect for 17 years, has each year shown increased participation. Factors contributing to the expansion of the program include: (1) the effectiveness of new pest control materials in keeping pest infestations at required low levels, (2) the increased marketing of stock in packages which would be damaged by inspection at destination, and (3) the demand of consumers for origin inspected shipments which can be delivered without delay.

#### Plant Registration and Certification

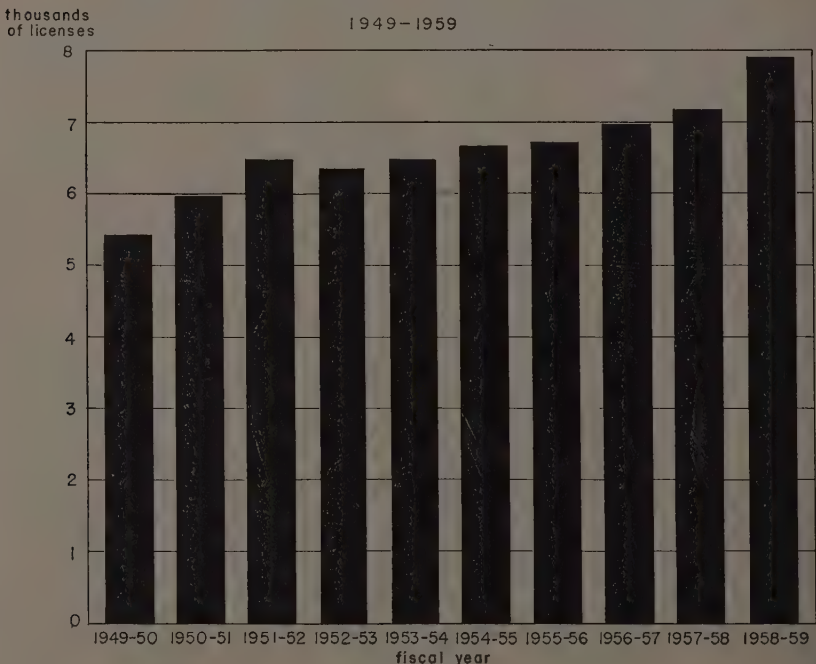
Avocado nursery stock is eligible for certification if grown in accordance with specified procedures to protect against infection with *Phytophthora cinnamoni*, the fungus

causing avocado root rot. One nurseryman is growing several thousand trees for certification.

Citrus trees found free from any suspicion of infection by the virus disease known as psorosis or scaly bark may be registered as rootstock or top stock sources, for the propagation of nursery stock. There are now 192 registered trees, a slight increase over the previous year. The University of California at Riverside has established a foundation block in Tulare County which is planned as a propagating source for an expanded registration and certification program to include inspection and testing procedures for other virus diseases and citrus pests.

Grapevines or grapevine plantings may be registered as root stock and top stock sources for the propagation of nursery stock when inspected, tested and found free from serious virus diseases. Nursery stock grown from these registered sources may be certified. Registered sources of 25 varieties of grapevines in 13 mother blocks and 10 increase blocks have been established by 17 partici-

LICENSES ISSUED FOR THE SALE OF NURSERY STOCK





pants. There were five nurserymen who produced plants for certification.

The grape program received a severe blow with the finding by plant pathologists at the University of California at Davis, that leafroll virus of grape is naturally spread and had moved into the grapevine foundation blocks at Davis. These plantings were abandoned and steps taken by the University to establish new plantings that could be registered. Previously the leafroll virus was known to be spread only through propagating wood. A sample index of registered rootstock plantings of nurserymen was undertaken to detect possible contamination by the leafroll virus. Using this procedure coupled with the roguing of vinifera varieties, which show symptoms without indexing, it is believed the program can be continued with the stock that is found to be clean.

Cherry trees may be registered as rootstock and top stock sources for the propagation of nursery stock when inspected, tested and found free from serious virus diseases. Nursery stock grown from these registered sources may be certified. Nurserymen have 77 registered trees established in two mother blocks. A total of 61 variety and seed source trees are now registered for the Foundation Plant Materials Service of the University of California at Davis. Over 40,000 buds from the registered trees of nurserymen and an additional 54,000 buds from yearling trees grown in approved increase blocks were obtained for budding nursery trees for certification in 1960-61. Approximately 7,700 certified trees were harvested by nurserymen and made available for orchard planting.

Strawberry plants may be certified when found true to type and variety and relatively free from virus diseases and other pests. Marshall, Shasta and Lassen varieties, totaling 32,889,000 plants were produced in 154 acres by six growers and were certified in the 1958-59 season. Nine plant beds were dropped from the program because of infestation with spring dwarf nematode and two because of the finding of root knot nematode.

*Grades and Standards.* County agricultural commissioners in enforcement of the nursery stock grades and standards law and regulations reported 1,386 lots totaling 210,000 plants were found not in compliance on inspection of incoming shipments. Of these totals, 832 lots of 23,492 deciduous fruit and

nut trees were found with defective roots, 279 lots of 12,744 plants were dead or in a dying condition and 275 lots of 173,826 plants were labeled improperly. In addition many lots were required to be regraded or properly labeled at origin where enforcement is emphasized before shipments are made. Misrepresentations in advertising and labeling were required to be corrected in a number of instances.

*Other Services.* The Directory of Nurserymen and Others Licensed to Sell Nursery Stock in California together with a summary of agricultural laws pertaining to the nursery business was published and distributed to the nursery trade and other interested persons.

Each year a census of fruit and nut trees and grapevines grown in the State is compiled from information submitted by nurserymen. The total trees and vines grown for market in the 1959-60 season was about equal to the previous season. Total deciduous fruit trees grown was less and total citrus trees greater.

The Crop Reporting Service of the United States Department of Agriculture was assisted in maintaining a correct list of nurserymen in California for their production and value reports. The Agricultural Crop Reporting Board reported the wholesale value of eight types of nursery stock produced and sold in California in 1958 as \$21,336,000, an increase from \$20,815,000 in 1957.

Training programs are conducted by the bureau for state and county nursery inspectors for uniformity of enforcement. Information relating to the control of insect pests on nursery stock is provided and colored slides of insect pests are shown county agricultural inspectors. The motion picture "Nursery Practices in California" was shown to county inspectors, students in public schools and nurserymen.

Through close co-operation with University of California research and extension service men, the United States Department of Agriculture, agricultural regulatory officials of other states, industry associations, agricultural commissioners and other bureaus of the department information and assistance was exchanged. This provides aid in improving existing programs and in developing new programs to contribute to the freer movement of nursery stock shipments and to assist nurserymen in producing and marketing cleaner nursery stock of high quality.

# Bureau of Rodent and Weed Control and Seed Inspection

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## WEED CONTROL

An important development in regulatory weed control was the addition by the 1959 Legislature of Section 154.8 to the Agricultural Code. This section defines noxious weeds for the purposes of Chapter 1, Division 2 (Quarantine and Pest Control) and authorizes the Director of Agriculture, after investigation and hearing, to determine additional species as noxious weeds, in addition to those now listed.

Noxious weeds presently defined and listed in the California Seed Law (Sections 910-920 Agricultural Code) are those whose seeds may occur incidentally in agricultural seed. The seeds of many weeds of importance to agriculture are not commonly found in agricultural seeds. These weeds, equally as noxious as those listed, now will be recognized.

Increased interest is being shown in the federal government's "county weed control practices" under the Agricultural Conservation Program of the Agricultural Stabilization and Conservation Committee, United States Department of Agriculture. ACP payments, after being discontinued for several years, were renewed on a limited basis in six counties in 1958. The program was expanded in 1959 with the addition of several counties. Designated control areas and ACP payments are subject to the approval of the county agricultural commissioner. The program is playing an important role in regulatory weed control, notably in San Joaquin County.

## Special Weed Problems

Austrian Fieldcress *Rorippa austriaca*: Most of the Austrian fieldcress infestations on the county-state project at Likely, Modoc County, showed little growth activity during the year, but two fairly extensive infestations, involving meadowlands, are spreading. As a result of this increase, greater emphasis will be placed on surveys and field scale treatment, rather than treatment of individual plants.

To facilitate survey and movement of spray equipment, the landowner will level the lateral canal banks so that they may serve as roads.

From July 1 to November 1, 260 pounds of 2,4-D and 67 pounds of aminotriazole were used in controlling Austrian fieldcress. The State's one-third share of the cost, including manpower, was \$366.76.

Camelthorn *Alhagi camelorum*: On May 18, a camelthorn infestation of about two acres was reported near Orita Junction, Imperial County. The infestation, found in a cotton gin yard and on an adjacent irrigation ditch, was treated with 2,4-D amine at the rate of one pound of acid equivalent per 100 gallons of water, plus wetting agent. Future treatments call for the use of 2,4-D foliar sprays, soil sterilants to be leached into the soil by irrigation, and the application of soil fumigants.

On June 29, personnel from the Riverside County Agricultural Commissioner's office found five acres of camelthorn adjacent to the "old county property" infestation near Mecca. The infestation was sprayed with 2,4-D.

Another infestation of camelthorn, involving about two acres in an alfalfa field, was discovered in the Mecca district by Riverside County agricultural inspectors in September. Plans call for plowing up the field and planting a row crop, such as sweet corn, to facilitate eradication by soil fumigation with carbon bisulphide, or eradication by the sodium arsenite bottle method.

In Afton Canyon, San Bernardino County, the county-state camelthorn project progressed so favorably that aerial application was discontinued for the first time since the project was undertaken in 1954. Due to extremely low moisture conditions, county and bureau personnel were unable to find camelthorn seedlings. The established growth of about 30 or 40 plants was hand sprayed with 2,4-D.

At Daggett an extensive series of camelthorn test plots were established to explore the optimum treatment time for the plant when using 2,4-D and other systemic foliar sprays. Preliminary findings indicate best results are obtained with 2,4-D when the plant is in the bud stage.

All known camelthorn infestations on the county-state project in Kern County were treated at least twice. One infestation, on an embankment, was scheduled for carbon bisulphide fumigation at year's end.

During the summer, a small camelthorn infestation of about 100 square feet was discovered northwest of Bakersfield.

In northern California, a 1¼-acre camelthorn infestation was found during the summer in the Byron district of Contra Costa County. The infestation was first treated with a contact herbicide and later with two soil residual chemicals: trichlorobenzoic acid and monuron. The combined treatment was aimed at controlling vegetative and seed production.

#### Other Weed Problems

*Halogeton glomeratus*: The second year of the operations designed to contain halogeton in Lassen County marked the successful containment of this poisonous weed within the old control areas.

The U. S. Bureau of Land Management reported a total of 54,000 infested acres in the Lassen County area. Due to sparseness of plants, hoeing was adequate for control on 20,000 acres, and 2,4-D spray treatment was required on 125 acres. The sum of \$3,977 was expended in the control program.

The U. S. Army Sierra Ordnance Depot treated 2,422 acres of an approximate 5,000 infested acres, using 2,4-D at a cost of \$12,751. Roadsides within the depot, the ammunition storage areas and perimeter infestations were treated.

Lassen County, on the county-state project, treated 14 acres with 2,4-D and hoed an additional 25 acres of sparse perimeter infestations in the buffer zone established in 1957. The untreated infested area within the periphery is about 1,200 acres. Control, aided considerably by the low germination of halogeton seed in a drought year, proved very satisfactory.

The State Seed Laboratory's "Stored Halogeton Seed Longevity Germination Experiment" is now in its ninth year. Although the test continues to show that the indurate bract seed (brown seed) is long-

lived under stored conditions, it also indicates that the bracts eventually become water permeable. Heretofore, the bract of the seed had to be removed before the seed would germinate. Four percent of the seed germinated before removal and 8 percent following removal for a total of 12 percent. Coincidentally, this year was the lowest germination percentage for the nine-year period.

Italian Thistle *Carduus spp.*: Of special interest is the recent development in the Italian thistle control program at Camp Cooke, Santa Barbara County.

At the suggestion of the county department of agriculture in 1950, the military authorities, leasing the property to a rancher, stipulated that the lessee must agree to control the thistle in future contracts.

Accordingly, control was begun by the lessee in the spring of 1951, and the infested area of 250 acres was sprayed with 2,4-D by airplane. Although the infested area eventually involved 315 acres, the degree of control progressed to a point where aerial application was terminated. Hand treating and patrolling will become major phases of the operation in the future. Technical service was supplied by bureau personnel, in co-operation with the county department of agriculture.

Leafy Spurge *Euphorbia Esula*: In Siskiyou County, a survey was conducted by bureau and county representatives to determine the cost of eradicating leafy spurge. Money has been budgeted by the bureau for leafy spurge control in Siskiyou County, should the county and private land owners wish to participate in a three-way agreement. Although the bulk of the infestations are in Siskiyou County, the survey was extended to Lassen County, the only other place leafy spurge is known to occur in the State.

The Siskiyou County survey showed the following distribution of leafy spurge: 100 acres in Quartz Valley, 2.25 acres along the Scott River, 34 acres at Dorris and 1.75 acres at Gazelle, a total of 138.0 acres.

In Lassen County, leafy spurge was found infesting four properties with an aggregate of less than two acres.

Tansy Ragwort *Senecio jacobaea*: On June 18, 4,800 insectary-reared larvae of the Cinnabar moth *Tyria jacobaea* were released at two sites near Fort Bragg, Mendocino County, for the biological control of tansy



Larvae of cinnabar moth (*Tyria jacobaea*) attacking tansy ragwort (*Senecio jacobaea*) in Fort Bragg area, Mendocino County. Photo by Rex Marsh, Bureau of Rodent and Weed Control and Seed Inspection.

ragwort, a plant poisonous to livestock. The release, made by USDA entomologist James K. Holloway marks the first introduction of this species in the United States.

The Cinnabar moth larvae was introduced from the USDA's insect investigation laboratory, Paris, France, where exhaustive feeding trials showed the insect would feed only on tansy ragwort. In Mendocino County the larvae readily attacked tansy ragwort plants. The original release will be maintained as an experimental plot for the next three years, and studies will be made on the moth's life history and its effect on the weed.

Permission for the introduction of the Cinnabar moth was given by the United States Department of Agriculture and the California Department of Agriculture.

Scotch broom *Cytisus scoparius*: On December 10, the department approved for introduction the leaf and stem miner *Leucoptera spartifoliella* for the biological control of Scotch broom.

A report of host preference tests in the USDA's Paris, France, laboratory and field observations in Europe show the insect is quite specific in its habits. The federal agency's investigations indicate that the insect can only complete its life cycle in

shrubby-type plant, and apparently it attacks only Scotch broom. The life cycle of *Leucoptera spartifoliella* extends over a one-year period. Nine months of the cycle are spent in the larval stage in the green stems of Scotch broom. The insect is not adapted to herbaceous plants where growth, flowering and fruiting takes place in three to four months and, after which, the leaves and stems wither and dry.

#### Pest Abatement Districts

The Big Valley Pest Abatement District in Lassen County treated 371.3 acres of hoary cress with 363.75 gallons of 2,4-D expending 255 man-hours. The district sprayed 103.5 acres of Russian knapweed using 142 gallons of 2,4-D and expended 72 man-hours for this work.

The Lookout Pest Abatement District in Modoc County continued to furnish equipment and materials to farmers for hoary cress and Russian knapweed control. One man was hired by the district during the six weeks spraying season.

The Stronghold Pest Abatement District, Modoc County, employing a spray rig operator for the summer, directed its efforts mainly against quackgrass. Infestations on private lands and ditchbanks were sprayed. The Modoc County Department of Agriculture co-operated by controlling quackgrass along roadsides. The commissioner's office sprayed 73.5 acres, using 293.5 pounds of actual amino triazole.

#### Summary of Expenditures and Area Treated for Weed Control from Reports of Agricultural Commissioners Calendar Year of 1959

County	Dollars	Acres treated	Miles treated
Alameda .....	\$14,583	1,163.50	—
Amador .....	6,486	33.00	2,714.50
Butte .....	9,094	1.02	2,790.00
Calaveras .....	2,504	3.50	1,502.00
Colusa .....	13,567	138.25	3,382.75
Contra Costa .....	20,374	623.45	—
Del Norte .....	2,406	823.75	182.52
El Dorado .....	1,214	8.85	624.00
Fresno .....	114,698	417.28	9,126.55
Glenn .....	18,694	391.00	1,560.00
Humboldt .....	11,476	167.35	435.62
Imperial .....	493	—	—
Kern .....	349	—	—
Kings .....	1,692	—	—
Lake .....	1,824	52.38	184.12
Lassen .....	5,422	671.41	16.40
Los Angeles .....	58,888	1,710.50	6,224.00
Madera .....	20,524	21.40	7,431.00
Marin .....	4,229	87.25	480.00
Mendocino .....	967	21.88	—
Merced .....	42,937	1.20	3,804.87



Modoc .....	6,683	719.00	----
Monterey .....	5,792	53.50	3,147.75
Napa .....	3,803	----	----
Nevada .....	2,665	----	392.70
Orange .....	22,050	14,259.50	1,076.50
Placer .....	601	21.18	6.50
Plumas .....	4,726	141.00	225.70
Riverside .....	24,409	2,742.22	878.22
Sacramento .....	3,200	----	----
San Benito .....	17,095	633.35	12,533.00
San Bernardino .....	8,008	205.50	10.00
San Diego .....	26,872	1,253.29	----
San Francisco .....	----	----	----
San Joaquin .....	114,023	2,168.15	----
San Luis Obispo .....	6,930	----	----
San Mateo .....	4,662	711.62	----
Santa Barbara .....	17,266	472.86	513.87
Santa Clara .....	7,249	2,786.60	----
Santa Cruz .....	1,234	579.90	----
Shasta .....	18,923	614.50	----
Sierra .....	See Plumas	----	----
Siskiyou .....	21,940	236.35	2,237.23
Solano .....	12,219	317.45	----
Sonoma .....	10,045	403.00	----
Stanislaus .....	33,318	1,511.00	1,832.00
Sutter .....	5,502	----	800.00
Tehama .....	8,508	29.00	1,743.00
Tulare .....	7,610	32.96	----
Tuolumne .....	2,259	50.00	764.00
Ventura .....	5,533	58.06	----
Yolo .....	48,200	425.00	3,159.00
Yuba .....	4,552	3.00	330.00
Totals .....	\$808,298	36,764.96	70,107.80

#### Materials Used and Costs

Sodium chlorate .....	22,152 lbs.
Borax .....	48,128 lbs.
Borate-chlorate combinations .....	49,199 lbs.
Borate-monuron combinations .....	57,118 lbs.
Borate-2,4-D combinations .....	56,300 lbs.
Petroleum oils .....	741,659 gals.
Sulphur .....	8,379 lbs.
Dinitro .....	4,704 gals.
Carbon bisulphide .....	115,818 lbs.
Dalapon .....	18,306 lbs.
Amino triazole .....	10,803 lbs.
Monuron .....	7,733 lbs.
Diuron .....	90 lbs.
Fenuron .....	40 lbs.
Ammonium sulphamate .....	75 lbs.
Simazin .....	11,258 lbs.
Benzoic acid .....	6,377 lbs.
Benzoic acid-Borate combinations .....	2,065 lbs.
Triazine compounds .....	380 lbs.
ICA .....	105 lbs.
2,4-D & 2,4,5-T invert emulsions .....	8 lbs.
2,4-D esters .....	8,627 lbs.
2,4,5-T .....	1,480 lbs.
2,4-D emulsive acid .....	1,572 lbs.
2,4-D amine salts .....	7,047 lbs.
Brushkillers .....	81,626 lbs.

#### PLANT PEST DETECTION AND IDENTIFICATION

In 1959 a total of 1,759 plant identifications were made, 1,619 by the Sacramento office and 140 by the Los Angeles office. Identifications of material intercepted at the border quarantine stations totaled 83 of which 42 contained viable propagative material of noxious weeds.

The following items are of interest in regards to distribution or unusual occurrence:

*Ambrosia trifida*, Giant Ragweed, was collected near Byron, San Joaquin County. This weed, a major cause of hayfever in Eastern United States, is rare in California.

*Anemopsis californica*, Yerba Mansa, a native perennial species, was reported as taking over a pasture near Gazelle, Siskiyou County.

*Carduus pycnocephalus*, Italian Thistle, was collected in the Feather River drainage about 2 miles southwest of Oroville. It was the first record of Italian Thistle in Butte County.

*Carduus tenuiflorus*, Italian Thistle, was submitted from an area near Lompoc, Santa Barbara County. This is a new record for this species since the other infestations of Italian Thistle in Santa Barbara are all *C. pycnocephalus*.

*Centaurea diffusa*, Diffuse Star Thistle, was identified from a single plant collected north of Canby, Modoc County. Further search has failed to find additional plants of this annual species which is spreading rapidly in neighboring Oregon.

*Cirsium arvense* var. *mite*, the form of Canada Thistle with unlobed leaves, was found in Modoc County southeast of Tulelake. This creeping perennial species had formed a dense stand in grain and in an adjacent yard planting.

*Cirsium ochrocentrum*, Beaumont Thistle, was reported from roadsides and adjacent sagebrush scrub south of Vinton, Plumas County. Due to dry conditions in 1959, this perennial species was growing to the complete exclusion of all other herbaceous plants. A single specimen of this species was collected from the railroad right of way at Walnut, Los Angeles County. The species is considered native from Inyo County, California, to Nebraska and Texas, but has also been found in Riverside, San Diego and Lassen Counties.

*Cuscuta californica*, California Dodder, was submitted from Santa Barbara County where it was parasitizing the Sea Fig, *Mesembryanthemum* sp. along a freeway.

*Elymus caput-medusae*, Medusa Head, continues to spread, new infestations being reported from northeast of Clements, San Joaquin County; Chileno Valley, Marin County; about 4 miles south of Elk Grove in Sacramento County; near Sunol in Alameda County; and southeast of Travis Air Force Base in Solano County.

*Eryngium armatum*, Prickly Coyote Thistle, a native species in the area, was reported as heavily infesting 10 to 15 acres of a native hillside pasture near Santa Cruz, Santa Cruz County.

*Euphorbia maculata*, Tall Spurge, was found in a vineyard south of Lodi, San Joaquin County. Grape production is significantly lowered by the toxic residues of spurge in the soil.



*Gaura sinuata*, Wavy-leaf Gaura, was collected adjacent to the freeway northeast of Sacramento, Sacramento County. This is the first recorded occurrence in the Sacramento Valley.

*Gaura villosa*, Hairy Gaura, was received from Texas for comparison with California specimens. From this material, and from the monograph of this genus by Dr. P. A. Munz, it is apparent that the California materials called *Gaura villosa* are pubescent forms, perhaps involving introgression from *Gaura villosa*, but for all practical purposes, referable to as *Gaura sinuata*.

*Linaria dalmatica*, Dalmatian Toadflax, was collected on a hillside 1.5 miles east of Yreka, Siskiyou County. It was previously known to be only from San Diego and Ventura Counties. This perennial plant, with a thick woody root and creeping rootstocks, is becoming a pest of grainlands and roadsides in Oregon.

*Nerium oleander*, Oleander, was the cause of death or distress of cows in Los Angeles County. The dried leaves had been baled with the alfalfa hay.

*Onopordum acanthium*, Scotch Thistle, was reported as infesting 100 square feet southwest of Tulelake, Siskiyou County. Occasional roadside plants of this species were found at scattered localities in Western Modoc County.

*Onopordum tauricum*, Taurian Thistle, was submitted for identification from Siskiyou County. The infestation of this weed occupies about two acres southwest of Dorris where it has been known to exist before 1942. The only other record of this species in the United States is from Pueblo County, Colorado.

*Panicum urvilleanum*, a perennial grass native to the sandy deserts of Arizona and Southern California, was reported as spreading vigorously and densely in a two-year-old cultivated grapefruit orchard in Indio, Riverside County.

*Ranunculus sceleratus*, Cursed Buttercup, caused distress, including lameness to cattle, in the Manteca area, San Joaquin County.

*Senecio jacobaea*, Tansy Ragwort, was submitted from near Sweetey Dam, south of Korbelt in Humboldt County. This is the second small infestation for Humboldt County. This toxic weed is locally abundant in Del Norte and northern Mendocino Counties.

*Solanum carolinense*, Carolina Horsenettle, was submitted for identification from railroad yards, Oroville, Butte County.

*Solanum lanceolatum*, Lance-leaved Nightshade, was sent in from El Cerrito, Contra Costa County, where this tall shrub has escaped from cultivation by means of creeping rootstocks.

*Sorghum lanceolatum*, an annual species native of tropical Africa, was collected from a ditchbank southwest of Bard in Imperial County. The area is the only place this species is recorded as an escape. The grains are quite similar to those of *Sorghum aluum*, except that the pedicel regularly separates from the base of the grain. This easy shattering of the grain makes it less useful than Sudangrass.

*Triglochin* sp., Arrow Grass, well-known for producing prussic acid, was reported as causing death to numerous jackrabbits in Surprise Valley, near Cedarville, Modoc County. Prussic acid is known to be produced in such plants in much greater quantities when the plants are wilted. Dead rabbits were

found for one-quarter of a mile around mowed native meadows but none were found beyond this area.

Nitrates occurring in toxic quantities in plants continue as a cause of distress or death of livestock. Two abortions in dairy cows were reportedly caused by nonlethal dosages of high-nitrate hay.

*Condalia globosa* var. *pubescens*, a rare native species submitted for identification from near the old stage road between the Chuckwalla and Chocolate Mountains, Riverside County, represents the most northern record found for this species. This plant which grows 8 to 10 feet tall as an intricately branched shrub or small tree, was submitted by a member of the State Department of Fish and Game who was interested in the species as a bird refuge in the desert areas. The plants are not browsed by livestock.

## RODENT CONTROL

### Ground Squirrels

The ground squirrel suppression program in California includes the continued use of fumigants and toxic baits. Due to the heavy rains which persisted over a short period during the late winter, and the lack of early spring showers, many of the counties were compelled to discontinue fumigating programs for the year.

In many areas the breeding season was erratic; resulting in young being present at various stages of development. These areas of erratic breeding hampered spring poisoning programs and resulted in poor control in some areas. Bait acceptance in the fall was prolonged by almost a month in some areas due to the mild weather. Some counties took advantage of this situation and obtained exceptionally good late fall control.

Two co-operative squirrel control programs with the State Division of Beaches and Parks were put into effect. The County Agricultural Commissioner's staff, in co-operation with bureau personnel, instructed the park officials in the procedure and technique of treating the parks. The El Capitan State Park in Santa Barbara County was treated with 1080 oat groats, resulting in a high degree of control.

In Riverside County, the Elsinore State Park was treated, using zinc phosphide baits with a satisfactory result.

In Modoc County, Agricultural Commissioner Loring White developed a low volume broadcasting machine which may be useful in baiting for the control of the Oregon ground squirrel. (California Department of Agriculture Bulletin, July-August-September 1959.)

### **Jack Rabbits**

Throughout the agricultural areas of the State there have been increased complaints of jack rabbit depredations in field, truck and forage crops, as well as in vineyards and orchards. The agricultural commissioners' offices in the San Joaquin Valley received more calls for assistance in jack rabbit control than in several previous years.

Generally, control practices have given satisfactory results, except in desert areas where crops are surrounded by range and brush land. In these areas successful control has only been achieved by fencing. When the local jack rabbit population is suppressed, the existing population is soon replaced by a migration of rabbits from the outer perimeter of the control area. Jack rabbits having an extensive home range find these ecological niches extremely attractive and are drawn from great distances.

### **Meadow Mice**

Meadow mice in Northern California are at a very low population level in Tulare, Siskiyou and Modoc Counties; Big Valley, Lassen County; Sierra Valley in Plumas and Sierra Counties, and the Bridgeport meadows of Mono County. Population decline was greatest the previous year at Bridgeport, while a residual population remained at Tulare early in 1959.

There were local increases in the mouse population throughout the State although none approached the magnitude of 1957-1958.

### **Rats**

Control operations are continuing in the counties throughout the State as problems arise. The county agricultural departments dispense bait materials to farmers as requested. A constant problem is the build-up of rats in many of the garbage dumps. Some agricultural commissioners treat garbage dumps periodically and, in instances, have installed permanent bait boxes which are serviced regularly, resulting in a high degree of control. This service is usually done in co-operation with the county health departments.

### **Muskrats**

Muskrat control has been necessary throughout the State. Several irrigation districts in the Sacramento Valley carry on trapping and shooting control programs. A planned trapping program takes place an-

nually on the Sacramento National Wildlife Refuge in order to protect levees and roads. In the Palo Verde, Coachella, and Imperial Valleys, muskrat control, using anticoagulant baits in floating bait boxes, continues to give adequate control. The muskrat population in the San Joaquin Valley has resulted in an increase in calls for assistance. The floating bait box is being used in some areas with fair results. Carbon bisulphide is still used for control by several of the irrigation districts. Barrel traps have been used by the Fresno Irrigation District and the Kings County Agricultural Commissioner. Personnel from Kings County commissioner's office demonstrated and provided instruction for building barrel traps to the growers of the Tulare Lake area.

Musk rats were observed for the first time in San Benito and Santa Clara Counties.

### **Nutria**

Inspection of nutria pens and granting of permits to hold nutria progressed satisfactorily. During the first half of the fiscal year, 280 nutria breeders obtained permits, compared to 324 permits issued in the previous year. Some nutria breeders found operations unprofitable and discontinued operations. Several breeders were summoned to district attorney hearings in Fresno, Santa Cruz, Shasta, and Sonoma Counties for failing to maintain their holding pens in compliance with Nutria Law.

Escaped nutria were reported in the Counties of Napa, Sonoma, Santa Cruz, Santa Clara, Humboldt, and Tulare. All nutria were destroyed and no further evidence of escapes has been noted. In Merced County, where 60 feral nutria were taken last year, one animal was taken in 1959.

Numerous calls were received in various counties regarding nutria loose in canals and streams. Inspection of these areas revealed a rather high population of muskrats, which were mistaken for nutria.

### **Undomesticated Burros**

During the year, 178 permits to capture undomesticated burros for use as pets or beasts of burden were issued. Twenty-one permittees reported that they had captured a total of 89 burros.

A survey of the undomesticated burro population in the southeast desert area of California was made in co-operation with the Department of Fish and Game, the U.S. Bureau of Sport Fisheries and Wildlife, the

Bureau of Land Management and the National Park Service. Humane Affiliates, an organization interested in the protection of burros, was also represented. Burros were not observed in the numbers reported last year, due possibly to inclement weather. Considerable damage to browse was noted in burro habitats.

#### **Control of Disease-Bearing Rodents**

Rodent suppression where rodent borne diseases have been demonstrated is performed as a public health service in co-operation with the State Department of Public Health.

New outbreaks of epizootic plague have not appeared in California for several years. This summer (1959) in the Sierra Nevada Mountains four new foci of plague were detected by the State Department of Public Health. Following a human case of bubonic plague in Tuolumne County, joint surveys were conducted by the United States Public Health Service, State Department of Public Health, Bureau Vector Control, the County Department of Agriculture, and the bureau. An 18-section area surrounding the Town of Sonora was designated as a plague area in which the Agricultural Commissioner conducted field rodent control operations.

Positive plague findings were found in the Edison Dam area and the Mono Creek Campground, Fresno County, and in the Tuolumne Meadows-Lake Tenaya area of Yosemite National Park.

The state and county health departments and the U.S. Forest Service, in co-operation with the Agricultural Commissioner's office, supplemented control operations in San Bernardino County with an educational campaign to stimulate environmental sanitation and rodent proofing of cabins in mountain recreational areas.

#### **BIRD DAMAGE**

##### **Horned Larks**

Depredations by horned larks continued to be of economic importance in commercial vegetable and field crop plantings.

##### **Linnets**

Depredations to fruit and seed crops often require suppression of the linnet population in localized areas. In the Hemet area of Riverside County 18 apricot growers participated in a successful control program

and reduced losses to a minimum. These same orchards during 1958 sustained a 10 percent crop loss. A successful linnet control program was also conducted in the Beaumont-Banning area.

In Tulare County a linnet control program was conducted by the Agricultural Commissioner at the request of farmers in the Exeter-Woodlake areas. The purpose was to reduce damage to table grapes and disbudding of fruit trees. Two hundred ninety-nine properties were treated under supervision of two agricultural inspectors working full time in January, February, and March and part-time as needed during the year. A survey of the packing houses in the area revealed that in 1958 cullage of unmarketable grapes due to bird pecks was approximately 20 percent. In 1959 there was a 90 percent reduction in losses due to bird pecks as against the 1958 amount. Losses to grape growers were reduced nearly \$4,000,000 due to the effectiveness of the control program. Growers in adjoining areas have requested assistance in developing a control program for 1960.

Often confused with the linnet *Carpodacus mexicanus* is the purple finch *Carpodacus purpureus* which causes severe damage by disbudding in the early stages of bud development. In areas where olive trees are in close proximity to orchard, purple finches are normally present during the budding season. Control procedure for both species of birds is carried on in the same manner.

##### **Blackbirds**

The blackbird population appears to be on the increase in the San Joaquin Valley. Agricultural commissioners report more calls for blackbird control than in past years. In the Imperial Valley, damage to 15,000 acres of milo ranged up to 30 percent of the crop. Damage to lettuce and cabbage in Imperial Valley was somewhat less than in past years.

Many of the rice-growing areas of the Sacramento Valley continue to suffer depredation from blackbirds. In the northern part of the Sacramento Valley rice-growing district, blackbird depredations to rice fields are not as acute as in past years, except for fields adjacent to large patches of cattails.

Other depredations from injurious bird species continue in certain areas. Control practices were adopted when damage and conditions warranted.

Maggies

Complaints of magpies destroying almonds, walnuts, and olives have been made in the Counties of Yolo, Tehama, Sutter, Stanislaus, Sacramento, Lassen, Glenn, and Colusa.

Yellow-billed magpies caused serious damage to nut crops in the Gustin and Los Banos areas of Merced County. The magpie population was reduced by the use of toxic baits and by destroying the nests.

Starlings

Starlings were seen over most of California during the late fall and throughout the winter months. Reports show them to be more widespread than in the past year, but fewer numbers of birds to the flock.

Due to its rapid increase in numbers over the past few years, the starling has been of much concern to California farmers. Should the birds take up permanent residence, it is likely that they would cause fruit and other crop losses (California Department of Agriculture Bulletin, July-August-September, 1959).

In May 1959 several starlings were observed nesting near Bakersfield. A nesting attempt was reported near Walnut in Los Angeles County where the nest was destroyed.

Starlings were observed feeding on persimmons and on olives remaining on the trees after harvest. Several attempts at developing control procedures were made with unsuccessful results.

The following tabulation denotes bird control work carried on in the State as reported by county agricultural commissioners:

Bird Species	Number premises	Strychnine bait	
			pounds
Blackbirds	301	2,151	
Horned Larks	688	8,572	
Crows	22	156	
Linnets	1,430	11,490	
English Sparrows	949	5,470	
Crowned Sparrows	818	2,068	
Yellow-billed Magpies	20	22	
Miscellaneous and not designated	274	2,401	
	4,502	32,330	

Total cost of bird control operations for the year \$19,561.

The following tabulation denotes the extent of economic rodent control as reported by the county agricultural commissioners:

Pest Animal	Acres Treated	
Ground Squirrels	5,321,559	
Gophers	75,780	<sup>1</sup>
Meadow Mice	10,489	<sup>2</sup>
Jack Rabbits	43,469	<sup>3</sup>
Kangaroo Rats	19,659	
Moles	356	
Muskrats	36	
Miscellaneous	22,689	
Total	5,473,985	
Rats	9,331	premises
<sup>1</sup> Plus 420 premises.		
<sup>2</sup> Plus 13 premises.		
<sup>3</sup> Plus 26 premises.		

Pounds of Bait and Fumigants Used

Sodium fluoroacetate	212,745
Strychnine	129,765
Thallium sulphate	7,199
Zinc phosphide	115,586
Anticoagulants	57,012
Carbon bisulphide	199,914
Methyl bromide	8,055

In addition, 1,452 ounces of strychnine alkaloid and 115,206 jute waste balls were used.

Total cost of economic rodent control for the year was \$517,364 of which \$444,266 was expended for ground squirrel control.

In areas where rodents harbor diseases, the following operations have been carried on in co-operation with the United States Fish and Wildlife Service and the counties involved:

Area treated	{ 1,223,609 acres
	{ 401 premises
Strychnine bait	6,007 pounds
Thallium sulphate bait	3,016 pounds
Sodium fluoroacetate (1080) bait	45,715 pounds
Zinc phosphide bait	7,227 pounds
Anticoagulant bait	6,277 pounds
Carbon bisulphide	18,267 pounds
Methyl bromide	2,732 pounds
Jute waste balls	2,800 pounds

Total cost of plague area operations for the year \$101,220.

PREDATORY ANIMAL CONTROL

U. S. Fish and Wildlife Service Co-operating

Financial assistance was received by the department from 37 counties, the Tehama Predator Association, the San Bernardino County Range Improvement Program, the Inyo County Range Improvement Program and the U. S. Army.

There were 12,721 major predatory animals (bear, bobcat, coyote, and mountain lion) taken during the year, which represents an increase of 2,886. In addition 14,509 smaller predators were taken, representing



TABLE 1

## Predators Taken

Hunters paid by	Bear	Bobcat	Coyote	Mt. lion	Badger	Fox	Skunk	Opos- sum	Raccoon	Porcu- pine	Total
State of California	24	1,108	3,854	3	407	1,158	718	426	741	560	8,999
Counties	103	1,949	4,221	7	543	2,521	2,197	873	1,813	239	14,466
Association	1	52	187	0	19	126	28	2	115	46	576
* Federal	5	463	684	8	189	539	536	385	218	108	3,135
San Bernardino County Range Improvement Program			52								52
Total	133	3,572	8,998	18	1,158	4,344	3,479	1,686	2,887	953	27,228

\* Including U.S. Army.

a total of 27,228 predatory animals, an increase of 4,689 over the previous year. The increase in catch, which is the highest since 1947, is due partly to the increase in number of predators over the State, and to additional efforts from an operational standpoint.

Continued effort was made to control small mammals for suppression of rabies in many local areas when such work did not interfere with primary responsibilities. One hundred sixty-nine positive cases of rabies in small mammals were reported by the State Department of Public Health. Case reports were from 36 counties and included 82 skunks and 37 dogs. In the interest of rabies suppression, 3,479 skunks were destroyed as compared to 3,356 last year and the previous peak of 3,816 in 1957.

For the fiscal year ending June 30, 1960 the 37 co-operating counties appropriated a total of \$252,955.80. The Tehama Predator Association appropriated \$14,760, the San Bernardino County Range Improvement Program \$3,000, the Inyo County Range Improvement Program \$1,200 and the U. S. Army \$6,500.

## SEED INSPECTION

In 1959, one hearing was held on proposed amendments to the California Seed Law regulations. The amendments, which became effective in January 1960, include a definition of the term "hybrid" as used in the labeling or advertising of agricultural and vegetable seed, revision of specimen labels, and the addition of the Davis Branch laboratory as an official seed testing laboratory. An added paragraph permits an incomplete purity analysis of seed for an officially-recognized seed certifying agency.

The trust fund agreement with the California Crop Improvement Association was continued. This fund provides for bureau supervision of the regulatory phases of seed

certification performed by the various county agricultural commissioners.

## Lettuce Mosaic Testing

The official testing of lettuce seed for mosaic content was maintained in a leased greenhouse. Twenty-seven samples of lettuce seed were planted in order to grow 3,000 seedlings from each sample for a period of 28 days. All lots of seed were found to be labeled in compliance with the California Seed Law.

As a result of 1958 testing, three complaints were filed charging that lettuce seed was falsely labeled as containing "less than one-tenth of 1 percent mosaic content." The court action that followed resulted in one plea of guilty and two convictions. One defendant was fined \$600. Two were fined \$100 each.

## Field Work

During the year, 1,649 official seed samples were drawn. This represents an increase of 12 percent over 1958. The samples represented 1,042 lots of agricultural seed and 607 lots of vegetable seed submitted by 40 county agricultural commissioners.

Two hundred eighteen, or 21 percent, of the lots of agricultural seed sampled were in violation of the California Seed Law in the following respects:

	Mislabeled	Not labeled
Germination	82	4
Purity	80	10
Inert matter	66	3
Other crop	34	3
Weed seed	23	2
Sum of germination and hard seed	15	—
Miscellaneous statements	9	—
Name	8	11
"Certified"	7	—
Kind	5	2
Noxious weed seed	4	6
Hard seed	2	—
Treated seed	—	2
Date of test	—	4



Forty-five, or 7 percent, of the lots of vegetable seed sampled were in violation of the California Seed Law in the following respects:

	Mislabeled	Not labeled
Germination .....	20	10
"Below Standard" .....	—	17
Date of test .....	—	12
Treated seed .....	1	4
Lot number .....	—	2
"Hybrid" .....	1	—
Hard seed .....	—	1

There were 1,447 "stop-sale" orders issued during 1959 for the following violations:

Germination test outdated .....	1,126
Mislabeled .....	162
Incompleted labeled .....	132
Unlabeled .....	102
"Poison" warning not in red .....	41
Contained primary noxious weed seed .....	2

In several one-variety cotton districts, all in the San Joaquin Valley, only the Acala variety of cotton may be grown legally under the State's One Variety Cotton District Act. Investigations revealed that cotton other than Acala was being grown in two counties. Complaints filed by the agricultural commissioners in each county resulted in the conviction of both growers. One grower was fined \$50 and given a 30-day suspended jail sentence; the other was fined \$100.

Co-operating with the United States Department of Agriculture during 1959, the laboratory tested 947 samples of imported seed for the federal government, requiring 1,876 tests. One hundred seventy-five other federal samples required 249 tests. This is an increase of 38.5 percent in the number of

samples tested and 39 percent in the number of tests made in comparison with the 1957 and 1958 calendar years. In addition, 67 weed and other crop seed samples were received and identified for other laboratories in the western states.

State and county personnel submitted samples representing 27 lots of seed suspected of having been shipped in interstate commerce labeled in violation of the Federal Seed Act.

No action was justified regarding two of these lots, letters of warning were issued to the shippers of two lots by federal authorities, action is pending on six lots, and proceedings preparatory to prosecution were instituted against the firm responsible for the shipments represented by 17 samples. During 1959, federal authorities completed prosecution of the shipper of seven lots and two shippers of single lots sampled by California inspectors in 1958.

#### Federal-State Seed Laboratory

The seed laboratory experienced a busy year due to the increase in the official sample program reported above. The testing of service samples declined during the year.

#### Fees and Tests

Fees amounting to \$32,853 were collected on 1,652 service and 3,107 certification samples. A decrease of 23 percent in revenue collected was due to a drop of 52 percent in service samples submitted for testing.

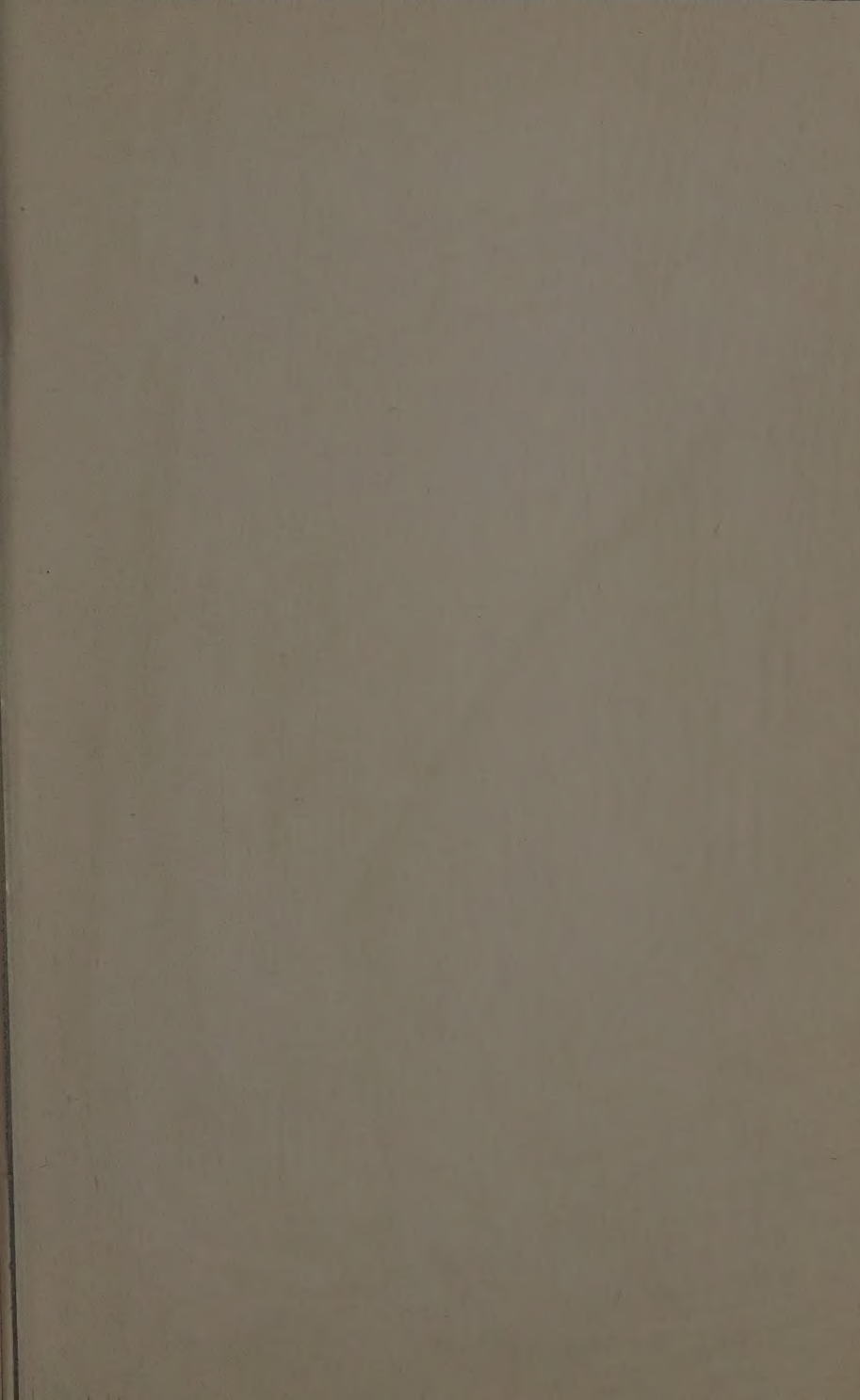
Table 2 summarizes the work, exclusive of federal testing by the state seed laboratories in 1959.

TABLE 2

	Number of samples	Purity	Germination	Identification	weed seed examinations	Total tests
<b>Sacramento laboratory</b>						
Official (California Seed Law)						
Agricultural seed .....	1,042	1,042	1,112	0	0	2,154
Vegetable seed .....	607	0	607	0	0	607
Service samples .....	1,652	259	1,583	8	140	1,990
California Crop Improvement Assn. ....	3,107	2,591	2,769	0	197	5,557
Investigational .....	797	90	740	0	6	836
<b>Quarantine samples</b>						
Bureau of Plant Quarantine .....	467	0	0	0	467	467
Agricultural commissioners .....	379	0	0	102	274	376
<b>Total for Sacramento laboratory</b>	<b>8,051</b>	<b>3,982</b>	<b>6,811</b>	<b>110</b>	<b>1,084</b>	<b>11,987</b>
<b>Los Angeles laboratory *</b>						
<b>Quarantine samples</b>						
County agricultural commissioners .....	1,573	0	0	73	1,500	1,573
<b>Total for Los Angeles laboratory</b>	<b>1,573</b>	<b>0</b>	<b>0</b>	<b>73</b>	<b>1,500</b>	<b>1,573</b>
<b>Grand totals</b>	<b>9,624</b>	<b>3,982</b>	<b>6,811</b>	<b>183</b>	<b>2,584</b>	<b>13,560</b>

\* Identifications and noxious weed seed examinations are the only tests made at this laboratory.









California Department of Agriculture Building, 1220 "N" Street, Sacramento

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The State Phone Number Is: HICKORY 5-4711



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Yolo	Charles H. Hardy (P. O. Box 175), Agricultural Center, Woodland
Yuba	Arthur W. Worledge (P. O. Box 264), 1420 I St., Marysville

The following counties have no agricultural commissioner:

Alpine, Inyo, Mariposa, Mono, Trinity.